AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

ORANGE JUDD & CO., PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

ESTABLISHED IN 1842.
Published also in German at $1.50 a Year.

$1.50 PER ANNUM, IN ADVANCE.
SINGLE NUMBER, 15 CENTS.
4 Copies for $5; 10 for $12; 20 or more, $1 each.

Entered according to Act of Congress, in August, 1871, by ORANGE JUDD & Co., at the Office of the Librarian of Congress, at Washington.

VOLUME XXX.—No. 9. NEW YORK, SEPTEMBER, 1871. NEW SERIES—No. 296.

THE THOROUGH-BRED STALLION LEXINGTON.—FROM A PAINTING BY TROYE.—*Drawn and Engraved for the American Agriculturist.*

Whatever may be thought of horse-racing, there is no doubt of the great utility of the race-horse. By race-horse, we do not refer to the modern trotter, but to the thorough-bred animal whose pedigree can be traced back in an unbroken line to its British ancestry and to the Arabian horse. The thorough-bred stallion is of the greatest value in breeding, whether we raise roadsters, coach horses, or farm horses, as it possesses in a wonderful degree strength, endurance, activity, and intelligence, all of which qualities it imparts to its offspring. When farmers learn that it costs as much to raise a poor colt as a good one, and that the good animal will sell for several times more than the inferior one, thorough-bred stallions will be more in request. As a typical specimen, we present a portrait of Lexington, considered by judges as the best race-horse and sire this country has ever produced. Lexington was foaled in 1850; was by Boston, dam Alice Cornéal by Sarpedon. See the *Turf Register*. The performances of his sire, Boston, were unparalleled in the annals of the turf, and his numerous offspring were all notables, though their fame was eclipsed by that of Lexington. Lexington is a blood bay, fifteen hands three inches high, with fore and hind feet and pasterns white. In all points, his body is considered absolute perfection, and in action he is unsurpassed. The remarkable performances of Lexington upon the turf are matters of record, the most noteworthy of these being his race against time, over the Metairie course at New Orleans, in June, 1854, when he ran four miles in 7 minutes 19¾ seconds, which is believed to be the fastest ever made. Lexington was sold in 1856 to the late R. A. Alexander, for $15,000, and is now owned by A. J. Alexander, Spring St'n, Ky.

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Ashes Leached and Unleached.—

"R. G. L."—The relative value of ashes will depend upon the thoroughness of the leaching as well as the character of the wood from which they are obtained.

Calendar for September.

Day of Month.	Day of Week	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct. Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	F	5 24	6 35	8 12	5 26	6 33	8 12	5 28	6 31	8 12
2	S	5 26	6 33	8 35	5 27	6 31	8 36	5 29	6 29	8 37
3	S	5 27	6 31	9 1	5 28	6 29	9 3	5 30	6 28	9 6
4	M	5 28	6 29	9 28	5 29	6 28	9 31	5 31	6 26	9 35
5	T	5 29	6 28	9 59	5 30	6 26	10 3	5 32	6 25	10 7
6	W	5 30	6 26	10 35	5 31	6 25	10 40	5 33	6 23	10 45
7	T	5 31	6 24	11 16	5 32	6 23	11 22	5 34	6 22	11 28
8	F	5 32	6 22	morn	5 33	6 21	morn	5 35	6 21	morn
9	S	5 33	6 21	0 2	5 34	6 20	0 8	5 35	6 20	0 15
10	S	5 34	6 19	0 57	5 35	6 18	1 2	5 36	6 18	1 8
11	M	5 35	6 17	1 56	5 36	6 16	2 1	5 37	6 17	2 4
12	T	5 36	6 15	2 59	5 37	6 15	3 3	5 38	6 15	3 7
13	W	5 37	6 14	4 4	5 38	6 18	4 7	5 39	6 14	4 10
14	T	5 38	6 12	sets	5 39	6 11	sets	5 40	6 12	sets
15	F	5 39	6 10	7 5	5 40	6 9	7 5	5 41	6 10	7 5
16	S	5 40	6 8	7 32	5 41	6 8	7 33	5 42	6 9	7 33
17	S	5 41	6 7	7 59	5 42	6 6	8 2	5 43	6 7	8 4
18	M	5 43	6 5	8 31	5 43	6 4	8 35	5 44	6 6	8 38
19	T	5 44	6 3	9 7	5 44	6 3	9 12	5 45	6 4	9 16
20	W	5 45	6 1	9 51	5 45	6 1	9 56	5 45	6 2	10 1
21	T	5 46	6 0	10 42	5 46	5 59	10 48	5 46	6 1	10 53
22	F	5 47	5 58	11 44	5 47	5 58	11 50	5 47	5 59	11 55
23	S	5 48	5 56	morn	5 48	5 56	morn	5 48	5 58	morn
24	S	5 49	5 54	0 51	5 49	5 54	0 56	5 49	5 56	1 2
25	M	5 50	5 53	2 3	5 50	5 53	2 7	5 50	5 54	2 12
26	T	5 51	5 51	3 14	5 51	5 52	3 17	5 51	5 53	3 21
27	W	5 52	5 49	4 25	5 52	5 50	4 27	5 52	5 51	4 29
28	T	5 53	5 47	rises	5 53	5 48	rises	5 53	5 50	rises
29	F	5 54	5 46	6 35	5 54	5 46	1 36	5 54	5 48	6 37
30	S	5 56	5 41	7 2	5 54	5 44	7 4	5 55	5 46	7 6

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart..	6	5 26 ev.	5 14 ev.	5 2 ev.	4 50 ev.	4 20 ev.
New Moon	14	2 25 ev.	2 13 ev.	2 1 ev.	1 49 ev.	1 19 ev.
1st Quart.	21	0 28 ev.	0 16 ev.	0 4 ev.	11 52 m.	11 22 m.
Full.....	28	1 0 ev.	0 48 ev.	0 36 ev	0 24 ev.	11 54 m.

AMERICAN AGRICULTURIST.

NEW YORK, SEPTEMBER, 1871.

September should be a comparatively leisure month on the farm. Wheat, barley, and, this year, oats are all harvested, and corn is not yet ready to cut. The principal steady work of the month for the teams is to put in the winter wheat. With us, October and November are the two busiest months of the year, and during September it should be our aim not only to get every thing ready, but to anticipate the work as much as possible. Of all the summer and autumn months, the farmer is inexcusable who does not drive his work. Next month it will drive him. We doubt the economy of a farmer taking a team and going to plow all day. A hired man, or a good boy, with a little instruction and occasional assistance, will do this kind of work, while there are a score of important things to be done that no one can do as well as the farmer himself. Much of the success of a farmer depends on the good judgment exercised on this point. It is where two farmers out of three fail. They would rather work than think—rather plow all day than keep things in order, and attend to the details as well as the general direction of the farm. *They do things that they like to do*, and leave undone those things which they do not like to do—or, what is about the same thing, they leave them to the hired men. No man can succeed who habitually adopts this course, for the simple reason that, no matter how industrious he may think himself to be, or appear to others, he does not in fact *work*. Work is doing something that his judgment or his conscience tells him he ought to do. If a farmer has a particular fondness for feeding a thrashing machine, and does not like to attend to the details of thrashing, such as seeing that no grain is left in the straw, or goes over in the chaff; that the horses are properly fed and watered, and that the outside horse, which has to travel farther than the inside one, is allowed a longer half of the evener; that the straw stack is properly built; that the boys are not put to do the hardest part of the work, and required to do all the running about and wait on the men besides; the farmer, in short, who shuns all thought, care, and responsibility, and devotes his time to feeding the machine simply because he likes to do so, while he knows, or might know, that he ought to be attending to other things, is merely wasting his time and strength. He is playing, not working. In agriculture, as in religion, feeling is no rule of duty. Happy he who, against his inclinations, does what he knows ought to be done; happier still he who feels like doing it.

Hints about Work.

Clover Seed will be a light crop this year. The spring of 1870 was so dry, that thousands of acres seeded down with clover failed entirely, and thousands more would not have been worth resowing for meadow or pasture had it not been for the timothy sown on the land the fall previous. We can not expect a heavy crop of clover seed from such land. Those who have any clover that will yield even a bushel of seed per acre would do well to gather it. With a mowing machine and a reaper platform, cutting clover seed is expeditiously and cheaply performed. Those who have only a mowing machine, can cut and gather a light crop of clover seed by making a sheet-iron platform, and attaching it to the cutter-bar of the mower, and letting it drag on the ground. A man walks behind the machine with a rake, and keeps the clover on the platform until he has got all it will carry, when he pulls it off into windrows. On a wood mower, the sheet-iron can be attached in a few minutes. When there is a large growth of clover, and comparatively little seed in it, it should be cured in such a way as to preserve as much nutriment in the clover as possible. We shall then get seed and hay. In this case, the clover seed should be cured in the same way we cure clover hay. But when the fodder is of no value, clover seed may be allowed to lie exposed to the sun and rain for days or weeks without injury. In fact, it will thrash all the easier for such repeated wettings and dryings. When drawn in, however, it should be quite dry, and if there is no barn room it is better to thrash it out at once, as it is almost impossible to make a stack of clover seed that will shed the rain. If put in a stack, it *must* be thatched.

Sowing Winter Wheat.—Some hints were given on this subject in the last *Agriculturist*. On a good summer fallow that is mellow and moist, it will make comparatively little difference whether the seed is sown broadcast or put in with a drill. But after spring crops, on dry, cloddy land, a drill frequently makes the difference between a good crop and a poor one. If sown broadcast, the seed lies among the dry clods, and much of it will not germinate until we have rain; while a drill can be set deep enough to deposit the seed in the moist earth beneath the clods. And if the drill is followed by a roller to break the clods, the moisture beneath will be retained, and the seed will germinate and grow, even should no rain fall for weeks. Late-sown wheat requires more seed than when sown early—say 1¼ bushels per acre if sown the first week in September, and two bushels the last week. Much, however, depends on the condition of the soil. On good, rich land, in fine order, the wheat tillers so much that less seed is required. A change of seed is always desirable. As a rule, it is believed to be better to get it from a somewhat more southern latitude, and from poorer soil.

Top-Draining the Wheat Fields where needed is of great importance, and it is better to do it as soon as the wheat is sown than to wait until the rains come. There are fields where it is necessary to plow out every dead furrow, but ordinarily all that need be done is to make furrows from the lower parts of the field where water accumulates. Secure a good outlet from these, and the upper portions, unless there are hollows, will not need furrowing.

Artificial Manure for Wheat will not pay unless we get $1.50 to $1.75 per bushel for the wheat. Nitrate of soda at four cents per pound is the cheapest source of nitrogen in the market at the present time, and with wheat at $1.75 it might be used with fair profit. Sow 100 pounds per acre when the wheat is sown, and another 100 pounds if need be in the spring. On poor, sandy land, it would be better to sow 100 pounds of guano and 100 pounds nitrate of soda per acre in the fall.

Timothy Seed catches better when sown with the wheat in the fall, than when sown in the spring. A peck of seed per acre is none too much, unless clover is to be sown in the spring; in this case, we prefer to sow four quarts of timothy in the fall, and six quarts of clover in the spring.

Manure may be drawn out on grass land when other work is not pressing. Spread it evenly as fast as it is drawn, and harrow to break lumps.

Thrashing.—See hints for last month. When grain is safe in the barn, and the space is not wanted for clover seed, the straw and the grain-will be all the better if not thrashed until they are wanted. There is little prospect of a decline in prices, and many reasons for anticipating an advance. The straw is generally of good quality, and as the hay crop is short, it will be unusually valuable for fodder. See that it is carefully preserved. An extra man in topping off the stack will be good economy.

Peas, when affected with the "bug," should be fed out early. When fed in September and October, the bugs cause little or no loss of nutriment. The pigs will eat bugs and peas together, and enjoy it.

Sheep.—With good feed, sheep will grow rapidly this month and the next, and lay up a store of fat and strength for the winter. We are sorry to say, however, that too many farmers leave their sheep to pick up a living as best they may. Instead of allowing all the food they can eat and assimilate, they are content if they find enough to keep them alive. They thus lose all that the sheep ate, while a little additional food would enable the sheep to produce considerable wool, mutton, and fat. Better, if need be, give a little hay, than let the sheep go without all the food they need. Lambs especially should be well fed. If they scour, there is nothing better than a pint each of milk porridge, made from fresh skim-milk and wheat flour. In severe cases, ten or fifteen drops of laudanum may be given, and repeated every five hours until the diarrhœa is arrested. Ewes intended for raising early lambs for the butcher must have extra good feed, and the ram put with them. There can no longer be any doubt that good, strong, common Merino ewes, crossed with a Cotswold or Leicester ram, will produce excellent lambs for the butcher. But it is equally certain that both ewes and lambs must be well fed. That is to say, the ewes should have good pasture in the fall, and good hay in the winter; or if straw is fed, which is the more profitable plan on wheat-growing farms, a little grain must be given in addition. The ram should have a pint of grain every day. A long-wooled lamb ram should not be allowed to serve more than forty ewes. A yearling or two-year-old will serve from sixty to one hundred, according to the length of time, food, and condition.

Milch Cows should have good pasture, and, if need be, a little extra food to prevent them falling off too rapidly in their milk. Contrary to general opinion, we find in our own experience that two quarts of corn-meal per day, instead of drying up the cow, will greatly increase the quantity of the milk and the richness of the cream.

Swine.—Pork is low, and it is a good time to pay extra attention to raising good pigs, as thousands of farmers will neglect their stock or abandon the business. Fall pigs need extra food to get them strong for the winter. Fattening pigs should be pushed forward rapidly this month. If there is not much profit in fattening pork at present prices, there will be still less if we feed the pigs little more than enough to keep them alive. That farmer will make the most money, or, at any rate, lose the least, who feeds the most liberally.

Do not be Discouraged.—If farmers are not making as much money as they have a right to expect—and, as a rule, such is the case—it may be well to recollect that we all anticipated "hard times" after the war. We have certainly suffered far less than we feared. Let us be thankful, and take heart for the future. The farmers are the mainstay of the nation. If the farmers prosper, the nation prospers. If farmers suffer, all classes suffer also.

We must Farm Better.—We must aim to make our land cleaner every year. Weeds are the most oppressive tax we have. We can not get rid of them at once. Keep fighting, and especially should it be recollected that we must make thorough work as far as we go. If not entirely dead, they will grow again, and we lose what work we have performed.

Killing Weeds Enriches the Soil.—This is the keynote to good farming. Most of our soils abound in latent plant-food. Stirring the soil, and exposing it to the atmosphere, favors decomposition, and renders the plant-food available—in other words, makes the land rich. The fall of the year is the best time to do much of this work. And the earlier we can get at it, the better.

Harrowing Grass Land causes a good many weed seeds to germinate, and when the land is plowed next spring the plants will be destroyed. In some cases, especially on light land, this is a better plan than fall plowing.

Keep the Teams at Work.—This is our own rule. We must aim to distribute the work so as not to be crowded too much at any one time. It is not always best to do work at what may be absolutely the best time, but to do it when you can best afford the time—provided always that it is never done too late. Any thing that we have time to do now that will lessen work in the spring should be done, even though we gain nothing except being so much ahead with our work.

A Dry September affords an excellent opportunity for digging ditches in low land, and for cleaning out and deepening those already cut. It is also a capital time to throw up muck, and get it ready for hauling in the winter. Any of our readers who have some land they think too low to drain, if they will commence at the stream, and dig a ditch through their land, *making the water follow them*, they will probably be astonished at the result.

Work in the Horticultural Departments.

September is a month for planting, as well as a month for harvesting. Many seeds can now be sown to advantage for early crops next spring. The horticulturist should always be on the track of progress. In order to do this, he needs to visit the exhibitions of fruits, flowers, etc., nearest to him, and as many more as practicable. One evening a week can be improved in visiting the farmers' club, if there is one in the neighborhood, and profiting by the experience of others. Standard works upon different branches of horticulture are valuable for study or reference, even if one is pretty well versed in the practical operations of the garden.

Orchard and Nursery.

In marketing fruit of all kinds, it will pay to take care not to injure it by careless handling, for the price paid for a good quality of fruit is much above that given for a poorly assorted and bruised article. If fruit is to be sent to a distant market, it must be picked while it is firm, but still fully developed.

Dried Fruit.—Commence to dry fruit as soon as it is fully matured. It will be of use when the season for fresh fruit is over, and when it is difficult to procure a variety of food.

Trees set last spring without any mulch around them, will often show signs of failing during the warm weather of autumn. If the soil around them is removed to the depth of three or four inches, and then watered thoroughly, and a heavy mulch applied, it will often save them.

Seed-Beds are to be shaded as directed last month, and kept free from weeds.

Evergreens may be removed now as well as in spring, if care is only used in taking up plenty of earth with the roots. Be sure that the roots are not exposed to the sun or to drying winds, and select, if possible, a damp, cloudy day. Large stones placed around the trees are better than stakes to prevent them from being disturbed by heavy winds.

Labels.—Provide new labels for fruit trees, where the old ones have become useless from long exposure to the weather. Have a plan of the orchard and nursery, so that in case the labels are lost, the different varieties may be readily known.

Seeds.—Save peach and plum pits from healthy trees, and bury them for planting next spring.

Plowing.—If new orchards are to be set this fall, the land ought to be plowed and manured, in order to provide the young trees with a good soil, in which they can make a rapid and healthy growth.

Kitchen Garden.

It is a good time now to make preparations for underdraining the garden. In a well-drained and deeply-worked soil, the crops rarely suffer from drouth, and the ground can always be worked much earlier in the spring. Harvest all crops as soon as they are in perfection, and clear the ground of all weeds and rubbish.

Asparagus.—If the beds did not receive a dressing of manure last month, apply it as soon as possible.

Beans.—Shell Limas, and dry for use next winter; and string-beans, prepared as for cooking, may be packed in jars with alternate layers of salt.

Cabbages and Cauliflowers.—In order to have these early next spring, sow the seeds in the open ground about the middle of this month, and, when large enough, prick out into cold-frames. Keep the late crop well hoed, and dust with lime if the slug makes its appearance.

Corn.—As soon as the ears have been taken from the early sorts, cut the stalks and feed them to the cattle; they make excellent food, and serve as a change of diet. Dry a supply of corn for winter use. Save a few ears of the earliest and best for seed.

Cucumbers.—Go over the vines every day, and pick all fruit of the proper size for pickling. Sweet pickles may be made of those which are too large for salting down.

Celery.—As soon as the nights begin to be cool, commence to earth up. Select a time when the plant is dry, for if the leaves are wet the stalks will be likely to rust. Use care in earthing up, not to allow any particles of soil to enter the center or heart of the plant.

Endive.—When the plants are a foot across, tie the leaves together at the top, or cover the plant with a flower-pot or a mat, to blanch it so as to destroy the bitter taste which it otherwise has.

Kale.—Sow the variety known as the German Green, which will stand our winters.

Manure.—Every thing in and around the garden that can be converted into manure must be saved and composted with stable manure. Where there is peat near by, dig out for the compost heap. Land for early spring crops is better if manured in the fall.

Melons.—Turn the fruit so as to ripen both sides; when ripe, the stem parts readily. Place the fruit on ice a few hours before eating.

Onions.—Harvest as soon as the tops fall down, dry thoroughly, and spread them in a dry, cool place.

Radish.—Sow the Chinese Rose-colored this month; it will keep all winter.

Spinach.—Sow in 15-inch drills; thin and weed as soon as the plants are large enough.

Sweet Potatoes.—Move the vines occasionally, to prevent their rooting. The larger tubers may be carefully removed, and the others allowed to grow.

Squashes.—Destroy all insects as fast as they appear. Remove the old vines of the early summer sorts. Allow the vines of the winter varieties to root freely at the joints.

Tomatoes.—Keep the superfluous growth cut away, and give the vines a support of some kind, if nothing more than a heap of brush. Destroy the large green "worm" which is found upon the vines abundantly this month.

Turnips.—Hoe the Ruta-bagas often. Sow the round early sorts early this month.

Fruit Garden.

Blackberries.—After the fruit has been picked, remove the old canes, and cut out all but two or three of the new ones. Never allow the new canes

to grow more than six feet high, and keep the side branches cut back to eighteen inches.

Currants.—Remove all suckers, and keep the rows free from weeds.

Grapes.—The prospects of the grape crop this year are, in most localities, very good, and plenty of boxes and baskets must be provided for marketing the fruit. Five-pound boxes are preferable.

Pears.—Gather the early varieties as soon as they are matured, and, if intended for home use, allow them to ripen upon shelves in the fruit-room; this greatly increases their flavor and juiciness.

Raspberries.—Tie up the new canes to stakes, after cutting out all but three or four, and shorten the laterals. Give the plants a dressing of stable manure, spaded under.

Strawberries.—Plants started in pots may be set out at any time during this month, but it is better to wait until spring for general planting. Keep all runners cut where the plants are grown in hills, and give the plants a good mulch of hay, after a dressing of manure has been applied.

Flower-Garden and Lawn.

If a good collection of annuals were planted, they will be making a good show now. Asters, Balsams, Double Zinnias, etc., are very fine autumn bloomers. All weeds must be destroyed as soon as they appear.

Bulbs.—Set the spring and early summer flowering bulbs late this month or early next month. If new varieties are to be purchased, order early, as it often happens that a dealer's stock runs low later in the season.

Chrysanthemums.—Pot a few plants for flowering in the house; place in the shade for a few days; thin out the weaker shoots, and stimulate with a little manure water.

Dahlias.—If not kept tied to stakes, the stalks are easily broken by winds. Remove all flowers as soon as they have passed their prime, and all imperfect buds.

Gladioluses.—Keep tied to stakes, and when they have done flowering, cut away the flower-stalks.

Lawns.—Remove all weeds, as recommended last month, and mow occasionally. Where there are bare places, sow grass-seed in time to receive the benefit of the autumn rains.

Perennials and Biennials.—Sow seeds this month in well-prepared beds, and keep free from weeds.

Potted Plants.—As soon as the nights begin to be cold, remove to the house, after washing the pots and pulling out all weeds.

Seeds.—Continue to gather seeds as fast as they ripen, and before the wind has scattered them.

Greenhouse and Window Plants.

All alterations and additions should be finished by this time, as a sudden frost is liable to injure many of the plants which have been set out in the flower-garden and ornamental grounds. See that there is a good supply of coal, potting earth, and other articles needed during the winter. Remove all tender plants to the greenhouse as soon as the nights become cool.

Annuals.—Sow seeds in boxes or pans for winter flowering.

Bulbs.—Pot all tender greenhouse bulbs like the Cyclamen, Oxalis, etc., the latter part of the month.

Callas.—Re-pot Callas after dividing them, and give them a rich, turfy soil, which is particularly adapted to their growth.

Potting.—Commence potting the tender plants which were bedded out during the summer, and plants which are to be used for propagating from.

Cuttings.—Prepare a quantity of cuttings for a supply of early plants in the spring.

A Remedy for a Hard-milking Cow.—Ed. Skinner, Middletown, Orange Co., N. Y., gives a remedy for a hard-milking cow, as follows: He makes four wooden pegs about an inch and a quarter long, of a proper shape and thickness to enter the orifice of the teat and distend it somewhat. These are greased, and when the cow has been milked, the pegs are inserted carefully, and allowed to remain. The constant distension of the teat enlarges the orifice gradually, and the cow will be more easily milked. When the teat is so obstructed that the milk spatters about, a small quill is inserted in that teat at milking time, and the milk is drawn in a regular stream.—These suggestions seem practicable, and we should be glad to hear if on trial they are found to accomplish the results aimed at.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending Aug. 16, 1871, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	312,000	2,736,000	4,117,000	37,000	16,100	941,000
27 days *last* m'th.	380,000	2,911,000	3,415,000	51,000	321,000	815,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days *this* m'th.	304,000	3,128,000	4,037,000	178,000	11,400	1,319,000
27 days *last* m'th.	343,000	3,436,000	2,225,000	59,000	6,800	1,371,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	312,000	2,736,000	4,117,000	37,000	16,100	941,000
27 days 1870	396,000	2,869,000	1,574,000	9,000	59,000	3,191,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
26 days 1871	304,000	3,128,000	4,037,000	178,000	11,400	1,319,000
27 days 1870	468,000	4,143,000	1,831,000	38,500	5,100	1,573,000

3. *Exports from New York, Jan. 1 to Aug. 10.*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1871	1,095,079	10,556,653	6,341,032	71,399	81,797	16,764
1870	1,069,227	10,236,257	220,647	65,734	——	11,205
1869	812,764	9,099,803	1,537,077	72,811	——	42,727
1868	575,091	3,209,204	4,903,872	153,093	——	40,643

4. *Stock of grain in store at New York.*

	Wheat, bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
1871.						
Aug. 14	397,516	2,403,359	34,593	——	84,405	177,484
July 10	386,163	634,954	96,945	——	274,099	199,541
June 12	230,350	292,188	114,783	3,480	334,459	142,572
May 9	283,700	239,245	160,734	50,725	376,226	171,933
April 10	811,871	180,947	150,964	164,398	709,363	171 897
March 13	1,523,785	204,388	150,514	329,349	1,133,897	218,231
Feb. 13	2,203,677	311,471	143,498	481,863	1,409,995	215,124
Jan. 16	3,685,116	272,618	157,730	554,491	1,736,936	216,394
1870.						
Dec. 15	3,060,762	208,319	148,069	500,397	2,085,137	231,129
Nov. 9	2,092,990	300,000	116,800	400,400	2,125,000	——
Oct. 10	1,809,921	476,544	53,391	184,803	1,679,658	237,433
Sept. 12	1,387,487	761,894	50,869	107,474	1,053,079	180,881
Aug. 8	1,438,876	589,973	25,437	106,101	691,766	119,046

5. *Receipts at head of tide-water at Albany each season to Aug. 5th:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.
1871	123,500	6,409,000	9,895,000	57,900	40,400	1,404,800
1870	170,100	7,097,600	1,454,000	279,100	90,900	1,572,500
1869	189,000	7,330,000	2,600,400	217,100	11,800	1,737,600
1868	121,400	5,073,900	8,226,000	159,600	326,500	4,359,200
1867	64,700	316,400	5,682,700	126,200	35,100	1,646,200

CURRENT WHOLESALE PRICES.

	July 17.	Aug. 16.
PRICE OF GOLD	112¾	112¾
FLOUR—Super to Extra State	$4 60 @ 6 50	$4 40 @ 6 25
Super to Extra Southern	5 15 @10 25	4 90 @ 9 50
Extra Western	5 40 @ 9 75	5 00 @ 9 00
Extra Genesee	6 50 @ 8 75	6 30 @ 8 25
Superfine Western	4 60 @ 5 15	4 40 @ 5 00
RYE FLOUR	4 00 @ 5 50	3 85 @ 5 00
CORN-MEAL	3 40 @ 4 15	3 30 @ 4 15
WHEAT—All kinds of White	1 45 @ 1 70	1 45 @ 1 65
All kinds of Red and Amber	1 30 @ 1 52	1 30 @ 1 51
CORN—Yellow	72 @ 74	71 @ 82
Mixed	67 @ 72	67 @ 69½
OATS—Western	64½@ 70	35 @ 51
State	65½@. 67½	Nominal.
RYE	85 @ 1 12	75 @ 85
BARLEY	Nominal.	Nominal.
HAY—Bale ₱ 100 lbs	1 05 @ 1 45	1 15 @ 1 65
STRAW, ₱ 100 lbs	65 @ 1 65	60 @ 1 20
COTTON—Middlings, ₱ lb	21 @ 21⅝	18⅜@ 19⅜
HOPS—Crop of 1870, ₱ lb	7 @ 13	15 @ 25
FEATHERS—Live Geese, ₱ lb	65 @ 75	65 @ 75
SEED—Clover, ₱ lb	10¼@ 11	10¾@ 11
Timothy, ₱ bushel	3 75 @ 4 50	4 00 @ 4 50
Flax, ₱ bushel	2 40 @ 2 50	2 05 @ —
SUGAR—Brown, ₱ lb	8½@ 10¾	8¾@ 10¾
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COPPER—Ilio (Gold, in bond)	10¼@ 13¾	10¾@ 13¾
TOBACCO, Kentucky, &c., ₱ lb	6 @ 12	6 @ 12
Seed Leaf, ₱ lb	12 @ 70	12 @ 70
WOOL—Domestic Fleece, ₱ lb	50 @ 70	50 @ 70
Domestic, pulled, ₱ lb	37 @ 55	38 @ 65
California, unwashed	23 @ 40	23 @ 40
TALLOW, ₱ lb	9 @ 9⅜	8½@ 9¼
OIL-CAKE—₱ ton	40 00 @42 50	39 00 @42 50
PORK—Mess, ₱ barrel	14 75 @15 00	13 50 @13 62½
Prime, ₱ barrel	12 00 @13 00	10 75 @11 00
BEEF—Plain mess	8 00 @12 50	8 00 @12 50
LARD, in trcs. & barrels, ₱ lb	9¾@ 11	8¾@ 9¾
BUTTER—State, ₱ lb	18 @ 32	13 @ 32
Western, ₱ lb	13 @ 27	10 @ 25
CHEESE	6 @ 12	6 @ 11
BEANS—₱ bushel	1 00 @ 3 75	62 @ 3 80
PEAS—Canada, free, ₱ bu	1 25 @ 1 35	1 30 @ 1 35
EGGS—Fresh, ₱ dozen	16 @ 21	19 @ 23
POULTRY—Live Fowls	18 @ 19	17 @ 20
Turkeys, ₱ lb	18 @ 19	18 @ 20
Geese, ₱ pair	1 50 @ 2 00	1 75 @ 3 00
Ducks, ₱ pair	75 @ 90	75 @ 1 12
POTATOES, ₱ bbl	2 50 @ 3 00	1 00 @ 2 00
SWEET POTATOES, ₱ bbl	— @ —	— @ —
CABBAGES—₱ 100	3 00 @ 5 00	4 50 @ 8 50
BROOM-CORN—₱ lb	4 @ 8	4 @ 8
APPLES—₱ barrel	2 50 @ 4 50	1 75 @ 3 00
PEACHES—₱ basket	— @ —	50 @ 1 50
PEARS—₱ crate	— @ —	1 00 @ 5 50

Gold has been moderately active since our last, with 111⅛@112⅜ as the extreme quotations, closing, August 15, at 112⅝....The arrivals of Breadstuffs have been very liberal during the month, and as receivers have been free sellers, prices have generally declined, influenced, to some extent, by higher rates on ocean freight. Toward the close, Flour, Corn, and Rye showed more firmness, with a livelier inquiry reported. Wheat left off heavily; Oats unusually depressed and unsettled, influenced by the large offerings of new, which are not coming to market in very desirable order. Rye closed strong, on a good export call for new-crop Western, of which considerable sales have been made for forward delivery. Barley has been altogether nominal....Provisions have been quoted lower, on a more extensive offering of stock and a comparatively moderate demand....Cotton has been less active and quoted cheaper....A moderate inquiry has been noted for Domestic Fleece Wool, mostly for the lower grades, at previous quotations. Domestic Pulled has been scarce and wanted at decidedly firmer rates. Texas and California Wool has been selling moderately at former figures. Foreign Wool, especially Cape, has attracted much more attention, chiefly from buyers for manufacturing purposes, at strong and buoyant prices. Holders of most kinds of stock have been very confident in their views....Hops have been in better request and quoted decidedly higher, influenced, in part, by the less favorable English, as well as home, crop reports....Tobacco has attracted less attention within our previous range of prices.

New York Live-Stock Markets.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
July 17th	7,435	74	3,180	28,565	26,792	66,046
July 24th	8,266	91	2,495	30,229	23,979	65,060
July 31st	8,125	56	2,563	30,000	23,685	64,430
August 7th	5,978	93	2,588	27,861	21,386	57,906
August 14th	7,498	92	3,662	28,558	18,983	58,793
Total in 5 Weeks	37,302	406	14,488	145,213	114,825	312,235
do. *for prev. 4 Weeks*	32,198	326	12,301	110,163	108,428	263,716

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	7,460	81	2,893	29,043	22,965
do. do. *last Month*	8,049	81	3,075	27,616	27,107
do. do. *prev's Month*	6,779	84	3,988	19,801	20,800
Average per Week, 1870	6,847	97	2,240	28,151	17,108
do. do. do. 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,588	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,154	26,605
do. do. do. 1866	5,743	94	1,280	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	11,023
Total in 1869	326,280	4,837	91,083	1,499,509	798,199
Total in 1868	298,128	5,466	82,577	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,274	6,161	71,991	836,733	573,190
Total in 1864	267,609	7,603	75,621	732,462	660,277

Beef Cattle.—The supply has been quite large during the past five weeks, though less than for the previous month. With many people out of town during midsummer, and peaches and other fruits abundant, less beef is consumed. Texan cattle have not come forward as freely as anticipated, the first shipments losing money. They are now increasing in quantity. The average quality of the receipts is fair, and trade has been somewhat uniform, the close being marked with some firmness, though the average decline for the month is nearly ½c. ₱ lb. As a general thing, the business of late has been unsatisfactory to shippers.

Below we give the range of prices, average price, and figures at which large lots were sold:

July 17th, ranged	6 @12½c.	Large sales	10½@11½c.	Av.	11¼
July 24th, do.	8 @13 c.	do.	do. 11 @12 c.	do.	11¼
July 31st, do.	6½@13 c.	do.	do. 10 @11 c.	do.	10¾
August 7th, do.	8 @12½c.	do.	do. 10½@11½c.	do.	11
Aug. 14th, do.	8¼@12¾c.	do.	do. 11 @12 c.	do.	11¼

Milch Cows.—With a fair supply of cows coming forward to keep up the flow of milk at a time when it is in most request, the market has ruled heavy, and low rates have generally obtained. Some miserably poor cows have been sent in for sale. They only brought $30 @ $35 each, what are generally termed common selling at $40 @ $55, fair to good at $60 @ $70, and prime to extras at $75 @ $80.....**Calves.**—Receips continue quite liberal; but many of those now sent in are known as "grass calves," generally sold by the head, at $8 @ $9 each, or 4½c. @ 5½c. ₱ lb. Prices have latterly advanced about 1c. ₱ lb., and the demand is good. Ordinary milk veals are quoted at 6½c.@7¼c.; fair to prime, 8c.@9c.; and only extras reach 9½c. @ 10c.....**Sheep and Lambs.**—Arrivals are increasing, as is usual at this season of the year. The greatest increase is in lambs. Fat sheep are scarce and wanted. Butchers are accustomed to use a portion of the loose fat of old sheep in setting off thin lambs upon the hooks. This makes the former in special request, and 6c. is readily obtained for those weighing 85@90 lbs. Some of 100 lbs. and upwards are selling at 6¼c.@6½c. Thin sheep and poor lambs go slowly. The bulk of the sheep are now coming from Ohio, with many lambs from Canada. Poor sheep sell at 4½c.@5¼c.; fair to good, 5½c.@6c., and prime to extras, 6¼c.@6½c. Lambs sell at 6c.@7½c.; few choice, 8c.....**Swine.**—There has been a little falling off in receipts, and some fluctuation in prices—first a decline, then an advance, and now an easier feeling again. Live hogs are quoted at 5½c.@5⅝c.; dressed, at 6¼c.@7¼c. The market closes heavy.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New-York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county-seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead-Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Special Notice.—Communications giving or asking for information are always acceptable. These should always be accompanied by the name of the writer. The name will not be published whenever there is indicated a desire that it be withheld. Writers may choose any signature they please, but we must be furnished with the real name. We are under no obligation to return rejected manuscripts. Where stamps are sent for their return, we, as a matter of courtesy, try to send them back. Writers should retain copies of articles which they consider valuable, as, with the best intentions in the world, we may not be able to return them if called for after the lapse of considerable time.

"Will Gas Lime Drive away Insects?"—We fear not. But it is worth trying. An Illinois farmer writes us: "A person near Chicago has been experimenting with different substances on potato-bugs, and claims to have found in gas lime a specific that will not only banish the potato-bug, but all other insects. I propose to try it next year on my spring wheat as a preventive to chinch-bugs." We would spread it on the land this fall, and either plow and harrow it in; or, if necessary, let it lie exposed to the atmosphere all winter. In this way, if not applied in excessive quantity, there will be no danger of its injuring the wheat.

Manure a Remedy for the Chinch-Bug in Wheat.—Mr. John T. Lawrence, of Lee Co., Ill., writes that he hears many complaints of the damage done by chinch-bugs this season to the spring wheat. "My own wheat," he says, "has escaped, and is a better crop in quality than I have raised for many years, which I attribute to a liberal application of manure plowed in last fall. Seed sown March 11th. The land is a sandy bluff, sloping to Rock River, the ridge being crowned by a row of Indian mounds, from which we have taken bones, arrow-heads, pottery, etc. Such soil, being dry and light, is just suited to the chinch-bug. Some years ago I sowed a piece in wheat which had been heavily manured for corn, and it was the only wheat in the neighborhood which escaped. A small portion not manured was destroyed by them, the line of their ravages being distinctly marked." This is an interesting experiment, and well worthy the consideration of our Western readers. When the midge made such havoc with the wheat crop of Western New York fifteen years ago, similar effects of an application of manure on dry land were frequently observed. It *may* be that the insects do as much damage on the manured crop as on that unmanured; but if we had a piece of land rich enough to produce 35 bushels of wheat per acre, and another piece adjoining only rich enough to produce 10 bushels, and the insects destroyed 5 bushels per acre from both crops, we should get 30 bushels per acre from one piece, and only 5 bushels from the other. Practically, the insects might be said to have nearly destroyed one crop, and to have done little damage to the other, while, in point of fact, they destroyed just as much wheat on the rich land as on the poor land.

Common Sense in the Household is the title of a work by Marion Harland, which is publish by Charles Scribner & Co., N. Y. Price $2. Mrs. Harland is widely known as a writer of fiction, and one might expect to find her quite out of her sphere as the author of a work upon such a matter-of-fact subject as domestic economy. Whoever prejudges the work in this way will make a great mistake, for a more practical, "common-sense" household book than this we do not remember to have seen. The recipes, so far as we have had occasion to test them, are excellent; and the whole work bears the evidence of having been written by one who has "been there." The chapters about "Servants," "Company," "The Sick-Room," and others, are full of sound sense, capitally put. It is not often that we meet with a work that we can commend so heartily.

Drilling Seed.—A new subscriber, Clarkston, U. T., is a novice at farming, and wants information about drills and drilling seed.—Drills are of great variety, but yet nearly all are constructed on the same principle. They can be drawn by a two-horse team, and will sow about ten acres of grain in a day, depositing the seed at a depth of three inches beneath the surface, more or less, as desired. Economy of seed and a better stand of grain are among the advantages gained by the use of drills. Our advertising columns contain the names of makers of drills who would gladly send a descriptive circular to our correspondent on being asked for one.

Wire Fences.—W. H. Barnes, Anderson Co., Kansas, says a two-wire fence would be of doubtful value. He makes a three-wire fence, the lowest wire 18 to 20 inches from the ground, the others placed at intervals of 12 to 14 inches. Thus the fence will be four feet high or something less, but sufficient to turn stock of any kind. Posts need to be one rod apart, and between the posts stakes to prevent the wires from spreading.

Management of Timber Lands in Illinois.—A subscriber (Iroquois Co., Ill.) has 150 acres of timber land which he wants to make the most of, and asks how he must manage it. All brush and undergrowth must be kept down. If the trees are small, they may be permitted to stand six feet apart until they begin to get too tall, then one half may be cut out and disposed of and the rest will increase in size. In a few years another thinning will be necessary, to be continued until each tree occupies a square rod of space. In twenty-five years each of these trees will probably contain half a cord of wood, or from six to eight posts, so that their value will be considerable. During these years the ground may be sown with orchard grass and some white clover, and pastured.

Clover with Corn.—A. G. Kirk, Dickinson Co., Kansas, says he saw in Columbus County, Ohio, last April, a fine stand of clover in a corn stubble, and on inquiry found the owner of the land was in the habit of sowing clover seed when he worked the corn the last time, for the purpose of supplying manure for the crop of oats, or barley, or wheat, which was to follow. This farmer evidently was one of the progressive sort, who believes in putting all he can on the land. We have done the same, pasturing the clover with sheep, and had a good crop of wheat after it.

Grass for Mountain Land in New Jersey.—A subscriber asks which is the best grass for mountain land in the north-west part of New Jersey. We have seen in Sussex and Warren Counties (which comprise the district referred to) as fine timothy and clover as we have seen anywhere, and we do not think these could be changed with any benefit. Where timothy and clover will thrive, we do not know of any more valuable substitute, though we might propose to add some blue-grass, which also thrives in that locality, as a help to the pasture.

The Extensive Roofing Works of H. W. Johns, which were burned July 26th, are being rebuilt of iron, on a larger scale than before, and will be completed by the time this paper goes to press. His business of manufacturing Asbestos Roofing has increased very rapidly, the demand this season having exceeded the manufacturing facilities. The enlargement of his factory will enable him to meet the requirements of his customers.

Farm Gate.—Asa Hartshorn, Ashtabula Co., O., sends us a model of a farm gate very neatly gotten up, but unfortunately the patent-right men have a claim on that gate. There is a patent on it for the right to manufacture and use, for which parties have been to our knowledge charged two dollars. It is hardly safe to make or use any gate that operates by means of rollers, as they are all subject to one or more patents.

Stopping a Hen from Sitting.—J. E. Smith, Durham, N. H., writes: "I was quite amused some days since by an old sitting hen. Having tried all the usual ways to induce her to leave her nest, I concluded to use 'moral suasion.' I placed two lumps of ice in the nest after taking her off. The 'old critter,' as usual in such cases, soon returned and took a seat, which seemed to disagree with her, and after a few hours Mrs. Hen concluded to associate with her fellows."

A Model Letter.—Wm. Johnston, Brookside, Mich., sends us a rare specimen of brevity and pertinence, which we print in full, as an example to others. "Hill, forty feet high; pitch of hill, 45°; spring at bottom, house at the top; what is the cheapest fixture you know of to raise water to the house?"——One thing is lacking, the fall of the spring from source to outlet, and this is important, as on it depends whether a ram can be used or not. If a fall of three feet can be got in a length of forty feet, a ram would work, and would elevate water through a half-inch pipe to the hight required. The pipe supplying the ram should be 1¼ inches in diameter. If there is not sufficient fall, a windmill is the best thing.

Soft Butter.—H. S. Dutch, Johnson Co., Iowa, has his butter come soft. His cellar is a "Western" one, not walled, well ventilated. Cows have good pasture, water, shade, and salt twice a week. What is the matter?——August probably is the matter. There is a good deal of soft butter comes in July and August. "Western" cellars are generally rather warm in the hottest part of summer, and ventilation does not mend it much. We have got good hard butter by putting a muslin bag filled with pounded ice in the churn just before the butter came. But generally, if the cellar is sufficiently cool, the butter will harden by the time it is ready to work over. Butter-making in summer is attended with many difficulties, unless all the accessories are well arranged, and even then the cows themselves will sometimes fail of coming up to the mark.

Norway Oats.—W. D. Krohn, of Bergen, Norway, sends us, by steamer, a sample of his oats. He states the native Norway oats had been cultivated for some years with great care, but without improvement; he therefore procured seed from Scotland, and now has a really good oat. The men consume all the crop; the animals get but little of it. The climate of Norway is damp, and the oats, having a heavy straw, are apt to lodge. We think, as has been generally the case, these oats would deteriorate in our hot, dry climate, though the appearance of the sample before us is very different from the Norway oats sent out by Ramsdell & Co.; they are plump, heavy oats, and would weigh 40 pounds to the bushel.

Bone Manure.—N. C. Boutelle asks if ground bone is profitable to use at $45 a ton, where barn-yard manure is worth $10 a cord, delivered on land. We think it is, if got pure. A dressing of 250 pounds per acre on grass land, especially if it is occasionally pastured, would undoubtedly pay. It must be remembered that the principal mineral substance carried off from grass land, in the shape of fed cattle, is the bone, and if this is returned to the land exhaustion is prevented, more especially when occasional dressings of barn-yard manure are applied. As a dressing for grape-vines, pear-trees, and for general garden use, it may be used at the rate of 300 to 500 pounds per acre profitably.

Making Cheese—Saving Rennet.—Julius F. Bingham, Greenville Co., Va., is making cheese in a region where nobody saves the rennet, and can not procure it. Can it be purchased in New York? Is also a novice in making cheese, and has made some errors, and wants advice. One cheese leaked badly, and is now dry and hard; some are hard and tough. Sometimes the curd comes in thirty minutes, and sometimes in an hour.——Rennet should be saved by all cheese-makers. It is very easily prepared, nothing more being required than to take the stomach of an unweaned calf and empty it of its contents without rinsing it; rub it with salt until it is perfectly cured; then the loose salt may be turned out, and a hoop of light twig be inserted, to keep it distended, when it may be dried and hung up for use. We have purchased rennet, when commencing to make cheese, at a seed store in Philadelphia. We have not seen them in New York. The failures spoken of are undoubtedly due to irregularities in the making of the curd, which practice will enable our correspondent to overcome. The temperature of the milk when the rennet is added should be always equal. 95 degrees is the proper heat. If this is exceeded, it will make a hard, tough cheese. The curd should not stand too long, or the same effect will be produced.

Clipping Sheep into Shape. — The proverb says that there are tricks in all trades. This is probably true, for we regret to say that farmers, who are by the very nature of their employment removed beyond the temptation to practice "ways that are dark," do sometimes allow themselves to fall into temptation. And here we relate a case in point. At an agricultural exhibition we were examining some long-wooled sheep, and it was whispered in our ear that the exhibitor of a prize ram had at the previous shearing made up the fleece by leaving the wool on the shoulders and breast and the rump, so as to give a squareness to the body of the animal which was fictitious. As our informant who thus let us into the secret of making up sheep for exhibition, was the son of the owner, and had a hand in it, and represented it as commonly done, and that the best hand at it was sure to have the best-looking sheep, we had faith in the truth of it and accept it as a fact. We find further that this same trick is practiced at English exhibitions, and has led to some sheep thus "gotten up" being set aside and not allowed to compete for the prizes. We doubt not that this practice is already in vogue in the United States, for we are apt to learn, and invent, and it is said sheep thus clipped were exhibited at the last New York State Fair (the instance we refer to occurred in Canada), and judges at fairs should take notice of it, and not allow any sheep to get ahead of its proper position by the practice of such an easily discovered trick.

Lest any person should suppose that the issuing of the Weekly *Hearth and Home* will lead the Publishers to any less attention to the *American Agriculturist*, it is proper to say, that this is not the case in any way. The two papers are entirely distinct from each other in matter, engraving, etc., as much so as if published a thousand miles apart. But the enlarged field and the increased facilities brought in by the Weekly, add to the resources and facilities for keeping up the old *American Agriculturist* to all its former excellence, and increasing its value.

Grass in Summer Fallows.—An inquirer has a summer fallow now bad with Quack and June grass, and asks about sowing timothy on it. This fallow can not have been properly managed, or there would be no grass in it. The purpose of a summer fallow is to destroy all vegetation by plowing it down or harrowing it out as soon as it appears, and thus keeping the ground quite clean. We would not put seed on such foul ground; we would rather sow oats or buckwheat next season, and seed down then. We have seeded timothy and clover successfully with a crop of buckwheat sown on the 12th of July; also with oats sown thin (2 bushels per acre) in April.

Sowing Timothy on Stubble.—I. McC. asks if timothy could be sown on wheat stubble without harrowing, this fall. It would be a risky experiment, unless the soil is in good heart, or it can be top-dressed with a little fine manure, or the fall rains should be copious enough to give the seeds some covering of soil. The seed should be sown liberally, say 10 quarts per acre, as much of it would fail to catch from want of covering.

Musty Cellar.—Fred. K. Gates, Cazenovia, N. Y., has a musty cellar which spoils the milk and other things in a few hours, and he wants a cure. This cellar wants ventilation. If ordinary ventilation by a window is not sufficient, open a communication with the chimney if possible, or put a wooden spout, eight or ten feet high, against the back or side of the house, and make the bottom of it open into the top of the cellar. Fix another tube from the outside, near the ground, which shall open at the bottom of the cellar. Thus a circulation of air will take place from the bottom to the top. Wash the cellar walls and ceiling with lime whitewash in which a little carbolic acid has been mixed; this will destroy the mold on the walls, and the ventilation will prevent its future formation.

Sawdust, Bone-Meal, and Ashes.—A. E. Phillips, Spottsylvania Court-House, Va., asks about the value of sawdust as a manure; also as to the propriety of mixing bone-meal, ashes and lime.—Sawdust is not of itself considered valuable, but we do not indorse much that is said of its worthlessness. We once saw very promising potatoes growing on a patch of old sawdust, mostly pine, but it was well rotted. It will soon rot if in a heap, and wet; but we would not advise it to be plowed in fresh. Better to use it for bedding for horses or cattle and allow it to ferment, which it will readily do, and then makes excellent manure, especially if of hard wood. Bone-meal should not be mixed with lime and water. They would set free the ammonia, which is one special virtue of bone-meal. Ashes may be mixed with bone-meal without loss, used dry, and immediately; any ammonia set free would be appropriated by the soil. Lime should not be mixed with manure.

Fattening Hogs.—Hogs that are intended for pork this year should now commence fattening. They should be put by themselves in a grain or clover stubble, where they will have exercise sufficient to keep them healthy and in good appetite, and be fed so as to keep them gaining rapidly. They will make a healthy growth during August and September, and, put up in November, will be ready for the butcher on one half the feed they would require if delayed one month later. In cold weather, a great portion of the feed is used up to maintain the animal heat, all of which is saved by commencing so as to forestall the cold, stormy weather of December. Plenty of fresh drinking water, and a trough in which to roll and bathe, will be needed and should be supplied. Pork, at the best, is not the most wholesome food, and the filthy manner in which some is fatted, is far from making it less disagreeable. A proper attention to cleanliness, to which a hog naturally is not disinclined, will not only improve the quality of the pork, but will prevent absolutely poisonous conditions of the meat.

To Prevent Sows Eating their Young.—"S. L. P." has tried the following plan and found it effective: "Take an old, coarse boot, and cut off the top above the instep; then cut a slit in the back, commencing at the top of the boot leg, so as to leave the bottom one or two inches below her snout. Thrust in the snout, and then take a rope and run through the finger straps and tie it back of the ears. This will prevent her from biting her pigs, while allowing her an opportunity to drink her food."

Value of Apple Pomace for Manure.—"W. H. C." We think it is worth a little more per ton than ordinary barn-yard manure. Allow it to thoroughly ferment and decompose before applying it. It would be better to compost it with manure.

Shade as a Fertilizer.—A gentleman in Maryland, who has recently become a farmer, asks our opinion of an experiment he proposes to make. He has a field of limestone land, naturally good, but "run down." He has great faith in "shade" as a fertilizer. The field is now in oats—sown more for the benefit of shading the land than for any other object. As soon as the crop is off he proposes "to cover the field over with straw, and then sow a bushel of plaster per acre on the same, for the purpose of holding what little ammonia may be in this poor soil, and also to hasten the early decay of the straw." We have no personal experience on this point, but think that where a farmer has more straw than he knows what to do with, the plan proposed is well worth trying. Shade, or, more properly, mulching the ground, checks evaporation and keeps the land moist, and thus during hot weather favors the fermentation or decomposition of the organic matter in the soil, and probably leads to the formation of nitrates, which have great fertilizing value. A growing crop, though it shades the land, does not have the same effect, as the growing plants pump up moisture and make the soil drier than it would be if kept clean and free from vegetation by summer-fallowing.

Will it Pay to Use Lime for Manure at 25 cents per Bushel?—C. A. Baker, of Chautauqua Co., N. Y., writes us that he has a farm of 230 acres, 100 of which is bottom land, subject to overflow. The balance is upland, originally timbered with pine and oak, with some hemlock knolls near the bottom land. The latter he has drained to some extent with hemlock boards. "And now," he writes, "the question is whether it will pay to use lime upon the upland at 25 cents per bushel. I have 40 acres that I want to break up and summer-fallow next year for wheat, as there are some white daisies on it. It is a pasture now, and will be used for that purpose as soon as seeded down again. Will it pay to dress it with lime? I keep 50 cows and make butter, also some young stock, and seven horses, and have 22 acres in Diehl wheat."——This is a sensible letter, as it gives us all the facts. We think Mr. B. is adopting the right course. Drain the rich bottom land and summer-fallow the upland. We should expect lime to have a good influence on such land, not merely for the wheat but also on the grass for many years. If lime could be had for 15 or 20 cents per bushel, we think few things would pay better than an application of one hundred bushels per acre, and lime for manure ought to be afforded at this price.

What is the Best Variety of White Winter Wheat?—We know of no better variety for good, rich, dry land, than the Diehl. It has short, stiff straw, and plump, well-filled ears. It is an agreeably deceptive variety, as, on good land, it turns out better on thrashing than it looks at harvest-time. The great trouble about it is that it varies a good deal in quality even when pure; and furthermore, it is almost impossible to find seed unmixed with other varieties.

Cultivating Corn.—H. I. Rosenberger, Clover Dale Farm, Va. The two articles in the June *Agriculturist* on cultivating corn are not contradictory, as our correspondent seems to think; they are in "Hints about Work." The deep cultivation there recommended will be seen to apply only to the exceptional case of sod land plowed early, which was not in good condition, being full of hard spots, needing deep cultivation to break them up. Further, this deep culture was recommended to be confined to the middle of the rows where there would be, at that early season, no roots to disturb.

To Kill Dew-Berry Bushes.—"I. G. B.," Woodland, Pa. The best plan you can adopt will be to plow the field infested with these bushes, twice in this month, harrow thoroughly after each plowing, and pick up and burn the roots.

To Prevent Butchers' and other Blocks from Splitting.—Geo. W. Walker, Lowell, Mass., has discovered that the round blocks used by butchers, glove and shoe cutters, and other tradesmen, can be prevented from splitting by boring a two-inch augur-hole in one side, and nearly through the block, half way between top and bottom. The hole is kept filled with water; a pine plug is driven in when the hole is filled, and taken out and replaced as may be necessary.

Potatoes on Sod.—"W. C. W.," Canaseraga, N. Y., has a piece of gravelly loam that has been five years in pasture, which he wishes to plant with potatoes next spring; and wants to know the best method of preparing the ground and manuring it. Sod ground is excellent for potatoes, and gravelly loam is a congenial soil. We would plow it this fall early enough to have the sod rotted before the ground freezes up. What manure is to be applied we would prepare during the winter by piling it as it comes from the stables, letting it heat, and turning it over twice or thrice; giving it occasionally a dose of plaster, say a bushel or two, spread over it when it steams. Worked in this way it will be pretty well rotted by the time the snow is disappearing. Then, while there is sufficient sledding, draw it out and spread at once from the sled. When the ground is sufficiently dry, we would turn the manure under and harrow it well just before planting.

Docks and Elders.—A correspondent who gives no name or address, asks how to kill docks, elders, and plantains (also, other questions which we can not answer for want of name and address). Docks and elders must be grubbed out by the roots. Plow the fence rows where they grow, during this month, and gather the roots and burn them, and use the ashes in the orchard or garden. Plantains may be dug up with a stout knife; if they are in a lawn or grass-plat, manure it and encourage the growth of grass, which will smother them out in time.

A Kansas Farm that seems to be Worn out.—"Cocklebur," of Leavenworth Co., Kan., has a farm that has been in cultivation 12 years, growing corn and wheat, soil a sandy loam, and it now seems to be worn out. This is the text that has been preached over and over again, and now one might say, "We told you so," and the old croak would not be devoid of truth. But "Cocklebur" is not past redemption—he has 2,000 large loads of manure in his feeding pens. Then let him forthwith get it out of his pens and put it where it ought to have been years ago, on his land. It will give 30 loads to the acre on his 70 acres of hardly used land, which will fit it to bear a crop of wheat and take to grass and clover; this plowed in, after two or three years will bring a crop of corn, which ought to be fed to some of those Texan steers he writes about, and a quantity of manure made and saved which will put the land through another course; and so proceed.

A Fly-proof Smoke-House.—E. B. Steers, Bull Creek, W. Va., wants a plan of a smoke-house that will keep meat clear of flies. It is necessary, to secure this, to build the house of brick, or of boards battened tightly together and lathed and plastered inside. The roof should be of tin, and the cornice should be tightly fitted together. The door should not be more than five feet high, and just above it a screen of fine wire gauze fitted on a frame hung on hinges and fitting closely to the sides of the house, so as to divide the upper part of the house, where the meat is hung, from the lower part, where the fire is made. This screen should not be removed or opened while the outer door is open, and flies should be carefully excluded during this time. A window fitted with a fine wire screen may be set in the house, both for light and ventilation, when required. For greater convenience in opening, the cross screen may be made in two parts, but care must be taken that no spaces be left where a fly or insect could crawl through.

We call attention to the liberal offer of the publishers on page 328, under the head of "Money Saved." There are thousands who could be greatly benefited, if led to read more of the useful; and if the extra offers made stimulate such persons to read and think more, they will doubtless be benefited, and the Publishers' end will be gained.

Cost of those Boats.—H. Moses, Exeter, N. H., wants to know the cost of one of the boats described in the *American Agriculturist* of August. The materials will cost about ten dollars, including two coats of paint and wrought boat nails. If common nails are used and only a coat of pitch outside, which will answer for hunting purposes, $4 or $5 will cover the cost.

List of Fairs.—On pages 353 and 354 will be found a very full list of fairs to be held in September and October, to which attention is directed.

Corn-Husks.—The husks of corn are very well worth the trouble of saving. When dried and torn into strips they make excellent mattresses, clean and sweet, and very soft and elastic. Plaited into a rope and wound round a central point, they make serviceable doormats, the manufacture of which will furnish pleasing and useful fireside employment for many a stormy day when outside work is impossible, or for the long evenings of winter. They are worth saving for these purposes alone.

Salt and Muck.—J. E. Larmer, North Haven, Ct., ask how much salt is sufficient for an acre of sod ground to be plowed this fall, or whether he may expect a good crop from well-pulverized muck, without other manure. We would not advise salt to be applied in the fall. Top-dressings of all soluble manures are more efficient when applied in the spring, more especially of those so very soluble as salt. If the sod ground is to be sown with wheat, we would apply two bushels per acre next April. As regards the muck, if it is rotted it will be of benefit, but if salt or lime is applied along with it, the benefit will be considerably increased. We would advise the muck to be composted with four bushels of lime and one peck of salt to the cord of muck, and after lying through the winter spread it early in spring.

More about the Little Pigs.—John Miller, Slackwater, Pa., recommends that the little orphan pigs be fed with milk and lukewarm water, with a teaspoon, taking them on the knees wrapped in a cloth. In the course of one or two days they will learn to drink the milk and water out of a pan. The water should be gradually decreased until pure milk is given. Another correspondent, who forgets to append his name to his letter, says the pigs will thrive better on sour milk (but not thick), fed a little and often.

Cure for Rot in Sheep.—J. Miller says that turpentine is a preventive of rot in sheep. To administer it, for every twelve head mix a tablespoonful with two quarts of wheat bran and one quart of salt; give this once a week.

Harvesting Peas.—Wm. Koeing & Co., St. Louis, Mo., ask how to harvest peas on ground too uneven for the mower. A horse rake may be used, which will gather them into rows, from which they may be forked up, when cured, into the wagon. Peas, when ripe, leave the ground very easily; in small quantities they may be "hooked" up with a scythe, but when the field is large the rake may be made available.

Horse Potato-Digger.—J. C. M., East Toledo, O., asks which is the best horse potato-digger. R. H. Allen & Co., 189 Water street, New York, have a very good potato-digger. We can not tell the price of it. They claim that it will dig the potatoes and separate them from the earth, leaving them in the row on the surface of the ground. Any mode of successfully digging potatoes by horse-power must necessarily be a great improvement on the old-fashioned hoe or fork.

Sweet Pork.—It is beyond a doubt that cleanliness has much to do with the flavor of pork. The filthy state in which many fattening hogs are kept has a tendency not only to give a rank taste to the meat, but to render it positively unwholesome. A very common mode of penning hogs at this season is in a rail pen, without protection from the weather. The consequence is that such pens are not fit to keep a living animal in; wet and filthy, cold and uncomfortable as they are, hogs will not take on fat, and a great proportion of the food is wasted while they are kept in them, while the filth, a considerable amount of which the hogs will consume, must be detrimental to their health and to the health of those who eat their flesh. It is not only safer but more economical to give fattening animals good shelter and dry beds and litter, and keep them quite clean. The labor will be well repaid.

How to get rid of Sorrel.—L. Horning, Montgomery Co., Pa., asks if some of our numerous readers can give him a plan to get rid of red sorrel—will lime do it?—Lime, of itself, will not destroy sorrel; we have seen it flourishing on the very verge of a lime-kiln. Cultivation will destroy it, and lime will encourage the growth of clover and grass, which will tend to smother it out. Direct applications of ashes or lime seem to encourage its growth, and we know of no plan but to plow it under before its seed is ripe. The seeds ripen very early in summer. Then keep the soil in good condition, producing good crops, and sorrel will be of no trouble.

Cleansing Milk Pans.—S. Owens, Malaga, N. J., asks how she can get her milk pans perfectly sweet. Wash with hot soapsuds, and rinse well in clean cold water, and if still sour, rinse with water in which soda or lime has been dissolved. Either lime or soda water will destroy any acid or sour smell which the pans may have, and will render them perfectly sweet.

Wire and Board Fence.—I. T. Smith, Cedar Rapids, Iowa, sends us estimates of the cost of wire and board fences as follows:

9 lbs. wire, @ 7½c.	67½c.
1 post, @ 20c.	20c.
7 stays, @ 1c.	7c.
1 lb. staples	12½c.
Per rod	$1.07
5 boards, 8 ft. each, @ 2c. per foot	80c.
2 posts, @ 20c.	40c.
1 lb. nails	8c.
Per rod	$1.28

Thus, he considers a board fence to be the more expensive of the two. As the fence question is one of the most important ones a farmer can study, we shall be glad to hear from our correspondent, as he intimates.

Temperature of a Spring-House for keeping Milk.—I. Wilson, Monroe Co., Iowa, has some springs which run from a bank, the temperature of which is 62°. He asks if they could be made available for a milk-house. These springs must receive warmth from the upper soil before they escape, as this is a very high temperature for spring-water and would not be sufficiently cool to keep milk well. There is no doubt that cooler water could be found by digging into the bank and forming a cave; if a spring could thus be found of a temperature of 50° or less, a very good milk-house might be made. The floor should be paved with stone and a channel dug out all round the inside, through which the water should be made to flow. In this stream the milk-pans should be set.

Bee Notes for September.—*By M. Quinby.*

Any old hive, weak or otherwise, should be examined now. Unless in sections where buckwheat is in blossom, weak hives will in all probability be plundered, unless they are protected. Contract the entrance or remove them at once. Refuse honey may be carefully fed to light hives, but leave none near the apiary. Diseased stocks should be removed now, that they may not be robbed, to the detriment of the robber. Such bees can be given to queenless stocks; but to guard against infection, confine them for forty-eight hours in an empty box or hive. The honey, such as is not fit for table, can be scalded, skimmed, and used for feeding. Other parts of the comb, mixed with brood, should be buried in the ground, to prevent the possibility of contagion. With Italians, there is usually but little disease. There need be no particular hurry about removing condemned healthy hives, that are strong enough to defend themselves, as it is well to allow the young bees to mature and leave the combs clean for another year. It is quite common to find in the apiary a hive with plenty of stores, few bees, and no queen; this occurs especially with box hives. If such hives are not infested with worms, they may be saved by supplying a queen and bees from one or more other hives. They will unite more readily if removed a mile or so from the old stand. A swarm that has filled up without a queen will have so much drone comb that it will not be worth while to try to winter it. Few bees and no sealed brood indicate a queenless hive. It is sometimes desired to winter light stocks, which is doubtful economy. In such a case the bees must be fed freely to induce them to build comb and rear brood. Now is the time to do this, if it is done at all. If it is necessary to feed a strong hive, October is the best time. Remove all surplus boxes. Honey that is now unsealed will be removed into the hive. It is reported that the prairie flowers of the Western States furnish abundant honey in September, and that colonies often get enough to carry them through the winter, and that they frequently gather a surplus. But we of New England and the central States need not expect any thing of this kind. It is presumed that most of the readers of the *Agriculturist* are sufficiently advanced to use movable combs in some form, and with them comes the necessity for a closer intimacy with our bees; of studying their nature, and learning what they will bear, etc. It will be found that their mood or temper varies with the weather, and that they may be trained to allow all our manipulations without resentment.

Sundry Humbugs.—Several subscribers, while writing very laudatory of these humbug exposures, say they come too late in many cases. That can not be helped. The ingenious swindlers usually send their documents only to distant points. Some of them watch this office, and, after getting a new scheme all ready, time their mailing so as to operate just after a number of the *American Agriculturist* has gone to press, so as to have a month to work in. Most of them pretend to limit the time in which their specious proposals can be responded to, so as to hurry up their victims before they are themselves checked by exposure. The only preventive is to give the cold shoulder to *all* these grand schemes for enriching you, and to promptly mail to us any new circulars received which have not already been mentioned in these columns. While gratified to know that few of the vast multitude of our readers are now liable to be caught by the swindling fraternity, we are sorry to learn that some were taken in by "S. C. Thompson & Co.," who obtained confidence by filling small orders very satisfactorily, and then failed to fill a great many large cash orders, and pocketed the cash sent. The concern has vanished out of sight or finding; the successful operators are probably now engaged in some new scheme under other names, and the sufferers have only dear-bought experience in return for their good cash. The only treatment for all these splendid circular or letter schemes offering large returns for little money is that recommended by Cuffee to Pompey in "cholera times," viz.: "De safust way is to eat notting 't all, and den you no 'spose yousef." One who lost $60 by S. C. T. & Co. writes that he sent the money because he saw the advertisement in such papers as the *New York Tribune*, *Toledo Blade*, *Western Home*, and others like them—papers which *ought* to reject all advertisements of unreliable or unknown character.....The following letter, received by one of our subscribers, who is a dealer in groceries and also postmaster, exhibits one of the shrewd schemes of 688 Broadway swindlers to get men into the meshes of their nets. Mr. A., being an honest man, sends the letter to us to hang in our rogues' gallery. Others who have bitten at the tempting bait, and involved themselves in aiding and abetting (as they suppose) a swindling scheme, will be glad to get out by paying a heavy blackmail assessment! This letter has a printed heading, with the 241 partly crossed by a pen-mark:

[COPY.]

THOMAS B. THAYER,

DEALER IN

GROCERIES, LIQUORS, TOBACCO, ETC.

No. 241 SIXTH AVENUE.

NEW YORK, July 6th, 1871.

JOHN AQUE, ESQ.—

DEAR SIR: I have been in the Grocery business since 1869. About three months since, I was compelled to fail. I succeeded in saving between six and seven thousand dollars worth of Sugars, Coffees, Teas, Tobaccos, and Segars. My creditors got all the balance. They suspected me of taking these goods, but were unable to prove it; so I have the goods safe. Now, sir, I have a confidential proposition to make to you in reference to the disposal of these goods. In the first place, your name was given to me by a young man that was engaged in a house you bought goods from, although he does not know of this matter, or me writing to you. If you will sell these goods for me, I will give you one (⅓) third of what they bring, with the understanding that you send me every two weeks my two (⅔) thirds of the money. The goods are assorted just right for a Retail Store, and suitable for your market.

I am anxious to have these goods turned into Cash as soon as possible, so I can have the money to go into some other business.

If you accept the proposition, let me know how to ship the goods, and I will do so at once.

Respectfully,

THOMAS B. THAYER,
688 Broadway.

N. B.—This matter must be confidential, whether you accept the proposition or not. If my creditors find out about these goods, they would have them seized, and perhaps cause considerable trouble. T. B. T.

Address me at 688 Broadway.

.....C. E. Weldon, to be addressed "Miss Jenny Everett, 688 Broadway," for a "blind," sends a letter very similar to C. Emerson's, printed last month, and is from the same party. Mr. Gayler will have to give special attention to ladies' letters hereafter, as the swindlers are quite generally donning the crinoline [ad]dress for a "blind."..... One of the "Queer" operators, who mails circulars, ap-

parently from Newport, Ky., professes to dip his counterfeits in an acid that causes them to rot and fall into powder in 25 to 30 days, so that they can not be used as evidence against any one detected in passing them, if he gets his trial put off for that time. He, of course, wants $5 in advance, which he pockets, which $5 is all there is in this affair.....About as "cheeky" a circular as we ever saw, is that of a Yankee, who offers advice and information on every conceivable topic in medicine and law, in patent-rights and religion, in science and art, etc., etc., etc., and after enumerating about every thing and every man on earth, and some things under the earth, offers "information on any other subject that can be thought of." He offers an unlimited number of receipts [*recipes*, we suppose, he means] "for any thing you wish" for 25 cents to $1. No letters answered, unless accompanied with a stamped envelope, and 25 cents required in advance as a first fee. The circular may be considered as next door to blasphemy, simply because no being short of Omnipotence could know and *do* all he professes to do. Our curiosity is a *leetle* excited to know what Col. *G. I. F. A.* means.....Omaha, Neb., has the credit of a lottery, dubbed a "Legal Enterprise," in which 90,000 persons are asked to give $2 each, or $180,000, for which a chance at $100,000 is offered—$80,000 of their money not going into the pool. Of said 90,000 ticket-buyers, 2,000 can draw prizes of $5 to $10 each; 200 prizes of $25 to $50; 70 of $50 to $100; 30 of $100 to $250; 15 of $500; 10 of $1,000; and 1 each of $2,000, $3,000, $5,000, $10,000, $15,000, and $20,000, and **87,690** persons out of 90,000 can't get any thing—all this, if every thing is done just as represented. We don't know what is to be done if all the tickets are not sold—and we don't see where 90,000 persons can be found to invest in *such* an enterprise, even though all the projectors be highly indorsed, and though something is said about aiding a Public Library..... Louisville, Ky., has another just such an enterprise, calling for a million dollars, of which a trifle over half is promised in "gifts." Is there no law to squelch these lotteries?—for they are nothing else.....Curing disease by smoking in medicines with tobacco!! Whew! Puff!! Puff!!! A nice thing to ease the consciences of the smokers! Said to be a French discovery, etc., etc. Well, what *next?* (See notes on medicines last month and in July number.).....An active agent of the Evil One, we should say of his meanest imp, has located at Hanover, Pa., or at least adopts that P. O. address, under the name of Mrs. H. Metzger, lock-box No. —. The real operator is doubtless of the masculine gender—we can not imagine a woman so desperately wicked for lucre's sake alone. The circular sent is entitled: "Fifteen Minutes' Private Conversation with Married Ladies." The 1st, 2d, 3d, and 5th paragraphs of this vile sheet, or any one of them, is sufficient to show the Satanic character of the swindler. We warn all who receive this circular, or others like it, to heed not a moment its lying promises, as they value their lives, health, or souls, to say nothing of the money which it is attempted to filch from them. Even granting it possible for any person, even in the most desperate case, to need one of the articles, we warn them that, should they get any return for their money sent, the articles will not do what is promised for them, and, if at all effective, can not be used without the most imminent risk of life, and the *certainty* of destroying health. Those who receive the circulars, as many are doing, will understand us; others will need no explanations. This being one of the most ingenious and plausible of this class of dangerous circulars, we deemed it best to give space for a reference to it, in as delicate language as the case will admit of. The good people of Hanover should drive out, or better lock up, the vile being, by legal means, if possible, but do it at any rate, and speedily....It seems almost impossible that in this country, noted for its intelligence, there should be ignorant and gullible people enough to furnish a profitable patronage to such nonsense and trash as is sent out by J. W. Stephens, Newark, N. J. (His numerous circulars don't tell us *where* he is to be found in that large city.) For example, he offers the "Oriental Charm," which, among a hundred other things, will *make* a woman love you, whether she will or no, and "make any one act just as you desire." Whoever has it will be healthy, successful, and prosperous, and "there is no power on earth that can prevent it"—all for $3!! His "Marriage Guide" he promises will teach how to cure all diseases, to manufacture diamonds, superphosphate of lime equal to guano, at one quarter the usual price, genuine Turkish Love Powders, lightning, fire, and water-proof paint, and to do a thousand other things absurd and otherwise. Said Stephens will also send (for $1) a secret that will surely make you rich. Why don't he keep and use the secret, and not bother himself and other people with nonsensical things that bring in only a dollar or two each? A glance at what he promises is enough to enlighten the greenest man or woman, yet he returns "thanks to our 10,000 customers and hosts of agents....for their liberal patronage."

MONEY SAVED!

A "Penny saved is two pence earned," runs the old adage, and it is a true one. Can you tell why? Below you will see how to save 25 per cent—equal to earning 50 per cent.

T-W-O F-A-C-T-S.

FACT the FIRST: There is not a MAN, or WOMAN—hardly a CHILD—that can really afford to do without the *American Agriculturist*.—If it can be done now, the Publishers mean to render this impossible in the future, by putting so much real PRACTICAL INFORMATION into its columns, that its readers will so far excel all others in *useful* intelligence, and in knowing how to live well, comfortably, happily, and successfully, that they will be *compelled* to get the paper for self-protection. This will happen largely within the coming year. With 30 years' past experience, with enlarged facilities, with an increase of publishing and editorial talent to aid them, the Publishers mean to surpass all their *own* past efforts, and to surpass all others.....So much will be given in useful, reliable information, fine engravings, etc., for less than ⅓ cent a day, that everybody *can* take the paper—SHOULD take it—MUST take it, or suffer great loss, and fall far behind their neighbors who do read it.

IMPORTANT NOW IS

FACT the SECOND: The Publishers offer a special premium to all *New* Subscribers for the 31st Annual Volume (*i. e.*, for all of 1872), who subscribe during this month of September—which offer will save **25** per cent. It is as follows:

Every New Subscriber for Volume 31 (that, is for all of 1872) whose Subscription is received during this month of September, will receive the paper from that time to the **end of 1872.** ... That is, he will get the paper **Fifteen Months** for one year's subscription! or he will get the **Three Months Free.**

Take Notice, First, that the above offer applies to **all new** subscribers received this month, that is, to single subscribers, at $1.50; or clubs of four to nine, at $1.25 each; or clubs of ten to twenty, at $1.20 each; or to clubs of twenty and upward, at $1 each.

N.B.—Subscribers too distant to respond to this before Oct. 1, will be allowed extra time to send in their names.

Please tell all your Neighbors of the above offer, and get them to send at once, and get the extra numbers *free*. It will be to them

MONEY SAVED.

High Prices for Shorthorns.

The great demand for beef in the cities and large towns in this country, keeps up the prices of Shorthorns beyond all other breeds of cattle. Though they have been very extensively cultivated both at the East and in the luxuriant pastures of the West, prices are still rising. We have probably quite as good Shorthorns as can be found in the world. Breeders from Great Britain are now found among the purchasers at our annual sales. At a sale of Shorthorns in Woodford Co., Kentucky, June 27th, eight bulls brought an average price of $190.62½, and twenty-five cows brought an average of $305. The highest bull was $440, and the highest cow $1,025. At a sale at Paris, Kentucky, June 29th, the bulls averaged $181.50, and the cows $230. At a public sale in Clark Co., Ky., June 30th, the bulls averaged $400, and the cows $277. These are great prices to pay for cattle, but they are cheaper to the purchasers who make a business of breeding than inferior animals at any price. The services of good bulls are a source of revenue. A. J. Alexander, of Woodburn Farm, Ky., charges $200 for service by 10th Duke of Thorndale, and, in England, Mr. McIntosh charges 50 guineas for service by 3d Duke of Geneva. Mr. King, the distinguished breeder of Minnesota, has recently offered Mr. Sheldon $36,000 for three heifers, and did not get them. On the same day Mr. Sheldon was offered $63,000 for five of his heifers. These offers for first-class stock, by men who best know the market, indicate good times ahead for Shorthorn breeders. This breed is likely to take the lead of all others in the new States west of the Mississippi, where beef-making is to be a leading business for many years to come. No investment will pay better than a Shorthorn bull to run with a herd of Texas or common cows.

The Register of the American Jersey Cattle Club.

This long-looked for volume has at length made its appearance, after many vexatious delays. It does great credit to the indefatigable Secretary, upon whom the principal labor of compiling has fallen. This labor had been much less, if correct pedigrees had always been furnished to his hands. But these have often been defective in dates, or minor points, where there was no doubt as to sire and dam, and the desire to make the work as perfect as possible has made the delay necessary. It will save much labor in the future to breeders who own registered animals. The contents of the volume are: constitution and list of members of the club; an elaborate essay on Jersey cattle, by the Secretary; the scale of points as adopted by the Royal Jersey Society; notes and rules as to the preparation of pedigrees; the Herd Register itself, comprising the names of 539 bulls and 1,427 cows and heifers, and 21 photographs of good specimens of the breed. The names of 93 members are enrolled, embracing a large portion of the breeders of Jersey cattle in this country. The appearance of this volume indicates an increasing interest in this breed of cattle, and will lead to a wider distribution of the stock. It can not fail to secure more careful breeding, and the improvement of the Jersey stock. It has already raised the price of registered animals, as it has depreciated those which can not trace their pedigree to importation. The volume will be almost a necessity for all Jersey breeders in this country. It can be had of the Treasurer, Thomas J. Hand, Box 802, New York City.

Stump Puller.—J. B. Sydner & Co., of Lynchburg, ask which is the best machine for pulling stumps. In this number of *American Agriculturist* we give a drawing and description of a machine that can be made for a few dollars. It will take out stumps 24 inches in diameter. If any heavier machine with greater power is required, the same principle can be applied, but the strength of the parts must be proportionately increased.

To Destroy Ants.—A. J. Miller, Allegheny City, mixes a teaspoonful of "cobalt" in three tablespoonfuls of warm water, and sweetens it. This he places in their haunts, and, in a short time none are left to say how much they liked it. What is sold in the stores as "cobalt" is metallic arsenic, and none should use it without being fully aware of its deadly qualities.

Draining for Gardens.—J. M. Graham, Pine Wood, Tenn., has a piece of land that has a heavy clay subsoil which he is obliged to use as a garden. He finds it dificult to work, and asks if sand would improve it. Sanding would be found too expensive. The most satisfactory remedy would be to cut drains four feet deep, four rods apart, put in either tile, plank, or stone, and then trench the ground with the spade eighteen inches or two feet deep. With sufficient manure there would be no further trouble about that garden.

A Pleasant Announcement.

All our readers will be gratified to learn that EDWARD EGGLESTON has joined our editorial corps, and that hereafter his entire time and talent will be exclusively devoted to the publications issued by ORANGE JUDD & Co. His attention will be given mainly to *Hearth and Home*, for the editorial work of which he has peculiar natural qualifications, and the benefit of much previous experience, as editor of the *Little Corporal*, the *National Sunday-School Teacher*, etc., and also for some time past as Superintending Editor of the *New York Independent*. The multitudes who have enjoyed his pleasant, instructive, and widely popular contributions to *Scribner's Monthly*, and other magazines and periodicals, will be glad to know that he has found a congenial home, where he can concentrate all his energies, and they will gladly follow him to this his new field of labor.

We are glad to announce further, that JOSEPH H. RICHARDS, long known to the newspaper world as publisher—for several years last past as Business Manager of the *New York Evening Post*—has joined the publishing force of ORANGE JUDD & Co., where his aid will doubtless be especially valuable.

A Working Capital of $200 per Acre.

The suggestion made on another page that $200 per acre might be used with profit, will bear explanation. It is susceptible of demonstration that even this large sum may, on a small farm, if not on a large one, be used to advantage.

Let us take, as an example, a fair farm of fifty acres, in the condition in which hundreds of small places now exist—good, but not remarkable, with tolerable buildings, a good but rather wet soil in fair condition, fences good, and live-stock neither good nor bad (just middling, as the live-stock on such a farm usually is). The farm is worth, with its improvements, $6,000; stock and implements, including six cows, one yoke of oxen, and a pair of horses, not less than than $1,500. Here is a capital of $7,500, on which taxes, interest, insurance, repairs, and renewals can not be covered by less than $600 a year. Add to this, for the farmer's own services, $600 more. Here is an outlay of $1,200. The income of the place may be set down as follows, which is an average case:

Milk from six ordinary cows, 12,000 quarts, @ 5½c.	$660
Potatoes and other vegetables	510
Hay	400
Grain	200
Pork	160
Poultry and eggs	100
Supplies for family (from the farm)	300
House rent	140
Total income	$2,400
Deduct: interest and services as above	$1,200
Hired man (wages and board)	500
Seeds, store bills, blacksmith, harness-maker, etc., etc	300 2,000
Profit	$400

or $8 per acre.

This is a very fair showing of much of the "good farming" on Eastern farms. Now, let us see what might be done on the same land, with a cash capital of $10,000 ($200 per acre).

In the first place, the land that needs draining may be drained for (say forty acres at $70 per acre) $2,800. The buildings may be enlarged and made convenient for work for $1,500. The six ordinary cows can be sold off for $300, and twelve first-class ones can be bought for $1,200—making a difference of $900. Five hundred pounds of good superphosphate per acre, or its equivalent in other manure, can be applied to the whole of the available land (say forty-five acres) for $600. New implements, including a steam-engine, cutting machine, etc., will cost $1,500. Placing fences so as to make the fields more convenient, the removal of old headlands, etc., may cost $400; and it will pay to spend $300 in subsoil plowing, etc.

We have now made a permanent investment of $8,000 of our capital, where its value will depend very largely on the manner in which it is used; and for its successful management we must be very careful in the handling of the $2,000 remaining. Of this sum, $1,000 had better be put in the bank against a time of need.

With this outfit, and a good business man to manage it, let us see what we may accomplish. The income of the place may be thus stated:

Milk from twelve extra good cows, 30,000 quarts, @ 5½c		$1,980
Potatoes and other vegetables sold		1,500
Grain sold		500
Pork		500
Poultry and eggs		200
Supplies for family from farm		300
House rent		140
Interest on cash for use		80
Total income		$5,200
Deduct: Interest and services as above	$1,200	
Interest on $10,000	700	
Hired man and boy	750	
Extra man in summer	250	
Seeds, store bills, etc	500	3,400
Profit		$1,800

or $36 per acre.

Nor is this the whole story. It is hardly the half of it. In the first instance, what with the sale of hay and the keeping of a small stock of cattle and swine, the farm is sure to run down, so that in a few years its balance will show on the wrong side of the account, and its owner will emigrate or go into trade. In the latter instance, where we have understated the early possibilities, the future improvement of the farm may be set down as absolutely secure. Every year the number of cows may be increased, and the product of the land will grow larger every year. It is not too much to say that at the end of ten years the borrowed capital may all be paid off, and the yearly profit per acre may be doubled.

With $100 per acre, more than one half as much may be accomplished as with $200, and perhaps more in proportion with $50; but, whatever the amount, and whatever the farm, let it be distinctly understood that *the man himself* is the true measure of his success. An idler, a dolt, or a novice attempting to carry out our suggestions, would run through his capital and swamp his whole farm—"as sure as eggs is eggs."

Country Roads and Bridges.

BY W. J. CHAMBERLAIN, HUDSON, O.

In an article published in July, there were given the location and the proper angle for bridges and sluices. I now propose to give some of the best methods of constructing them.

Where white oak or other durable timber is plenty and sandstone is not, the cheapest and best bridge is made as represented in figure 1. Suppose we want a bridge 2 by 10 feet inside measure. Such a bridge will discharge 56,000 barrels per hour, or over a million in a day.

The oak logs, *b b*, figure 1, 14 feet by 30 inches, have their ends resting on oak plank, *a a*, each about 15 feet long by 15 inches wide. The ends of the logs are hewn down so as to rest firmly on the planks. The stringers, *e, e*, etc., four in number, rest on the logs in the ordinary manner, then the planks, and then the wheel-guards, *c, c*. Then holes are bored, and long ⅝-inch bolts, *f, f*, are passed from wheel-guard to foundation plank, through the hearts of the logs, about six inches from their ends, and short bolts, *g, g*, are put through stringers, planks, and wheel-guards. Still shorter ones, not seen in the figure, bolt the middle stringers to the planks. The long bolts have a nut *on each end*, for convenience, instead of a nut on one and a head on the other. If there were a head on the lower end, the bolt must be driven up from beneath in building the bridge, which would be very difficult. If there were one at the top, the bolts would have to be drawn out to renew the planks, which would be almost impossible after they had rusted in for ten years.

A bridge so built will last twenty years by renewing the planks once. The abutments can never be *pressed in*, for the long bolts hold them in place. No freshet can wash away the bridge, unless it sweeps away the whole thing at once. If sandstone can be obtained within five miles, at a dollar a perch, it will not cost much more on the spot than oak logs, and make more durable abutments; but in this case the whole bottom of the bridge should be covered with plank running lengthwise of the road and extending under the stone-work; and the bridge should be bolted as when built with logs.

A bridge built of the size and in the manner described, with log abutments, will cost from

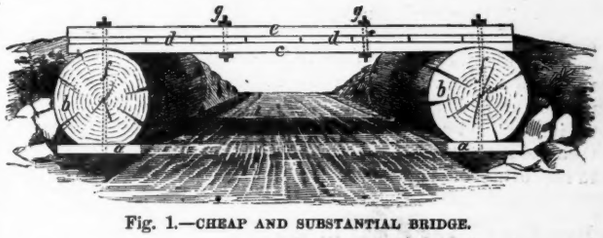


Fig. 1.—CHEAP AND SUBSTANTIAL BRIDGE.

$25 to $30; built with stone abutments and full plank bottom, from $35 to $45.

The best small sluice is made by spiking firmly together four 2-inch planks, as represented in figure 2. The sides should be 4 inches narrower than the top and bottom, and the latter should be spiked on to the former. Then we have a box, square inside. It can not *cave in*, and never *will choke up*, and will last as long as oak fence-posts, and is really cheaper than the old-fashioned sluice made with two logs and a plank. Sewer-pipes are expensive, and are apt

Fig. 2.—SMALL SLUICE.

to tip and heave, and then clog; or to become exposed and broken by heavy wagons.

The July article spoke at some length of Rule 1st. The present article must speak more briefly of the remaining ones.

Rule 2d.—Don't let the water have its own way. Not many miles from my house is a hill half a mile long, and some 200 feet high. Last spring the water from one gutter near the top worked its way into the middle of the road, and followed a rut to the bottom of the hill. In six

weeks there was a huge gully there, and dirt enough at the bottom of the hill to cost $50 to replace it. One dollar spent *at first*, in using plow and hoe, would have prevented all this waste. The supervisor of that district fairly owed the traveling public or the county treasury $49. "A stitch in time saves nine." It is his business to take the stitch.

Rule 3d.—Dig out all stones that stick up in the track. Of course throw out all loose ones. "It's surprisin'," said my shrewd old neighbor before mentioned, "how much cussin' a few small stuns in the track will cause. Th' use t'be an ugly one stickin' up front of my house, and it spoilt my front porch for noonin's. You see, I found the swearin' done over that stun was corruptin' my morals, say nothin' of spoilin' my noonin' naps. So I dug the thing up, and since then the teamsters have been more pious in front of my house. I b'lieve I stopped more swearin' than the parson could by preachin' on the hull ten commandments." Nothing tries the temper of a driver and the stuff of his wagon worse than stones in the wheel-track, and loose stones often seriously lame a horse. A supervisor can not do a better deed than to clear them all out of the road.

Rule 4th.—Clean and fill all mud-holes, as a dentist would a tooth, *so they will stay filled.*

It does no good to pike in dirt while they are full of mud and water. That merely enlarges the hole and makes it muddier. A few such "fillings" will spread it clear across the road. The water should be drained or dipped off, and the hole filled and rounded up so the dirt can not settle there again. If it is deep, small stones picked out of the track may be filled in at the bottom, if they are then well covered with gravel or dirt.

When a supervisor has observed these four rules and acted on them, his roads will be in a passable condition, and not liable to be rendered impassable by the first heavy rain. He can then use the rest of his funds in *turnpiking* and in improving the appearance of the highways.

How They Make Roads in Quiddletown.

BY ONE WHO HAS BEEN THERE.

MR. EDITOR: I don't want you to flatter yourself that you are doing such a mighty sight of good by your paper. It is all very well for you to tell folks how to do all sorts of things, and then, for fear they won't know what you mean, to rub it in with pictures. Your new-fangled notions may be good enough, and your pictures are awful taking; but you don't know every thing, or if you do, you can't teach it to the Quiddletown folks—you can't teach them any thing, they learned it all from their fathers.

To say nothing about high farming, and saving manure, and soiling, and all that, just take the matter of making roads for an example. Now, you think you know something about making country roads, don't you? Well, may be you do, but if you do the Quiddletown folks don't, and what they don't know a'n't worth knowing—as any one of them will tell you. I don't know much about such things myself, but I am going to tell you how *they* do it, and if you get my "illustrations" up in good style, I'll bet that a dozen people will follow this plan to one that will follow yours.

In the first place, Quiddletown is an old town, and they don't make any new roads; they only make the old ones over, and this is how they do it. Figure 1 is what you call a cross-section of a road, as it looks after corn-planting time. The black part is top soil and sods; the light part is blue clay, and the lumps are stones.

Figure 2 is the way the road looks after they have "made" it. In a little while, as the season is dry, it gets to look like fig. 3, where the spotted part shows the dust. It keeps this way

Fig. 1.—THE WAY THE ROAD IS AFTER CORN-PLANTING.

most of the summer; except for a rain now and then, but in the fall it gets pretty bad, as in fig. 4. Then the committee gets mad and puts on some stone, like fig. 5, with sods on top of them, so as to make the road hard in the middle any how. It makes it so hard that folks drive at the sides all winter, when the road looks as in fig. 6. It is only in the spring, when the frost is coming out, that they go on the stones, because they can't help themselves, and this is just enough to make it look like fig. 1, again.

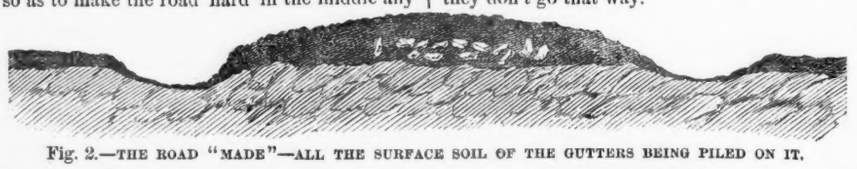


Fig. 2.—THE ROAD "MADE"—ALL THE SURFACE SOIL OF THE GUTTERS BEING PILED ON IT.

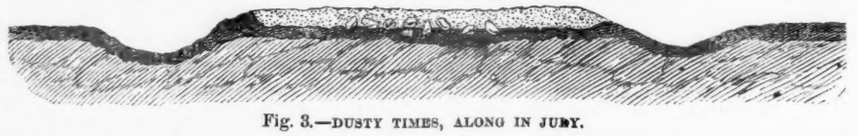


Fig. 3.—DUSTY TIMES, ALONG IN JUBY.

Then they appoint a new committee, and they go over the same course again, only they pick off some of the stones to make the road smooth for summer. They have to put them back again in the fall though.

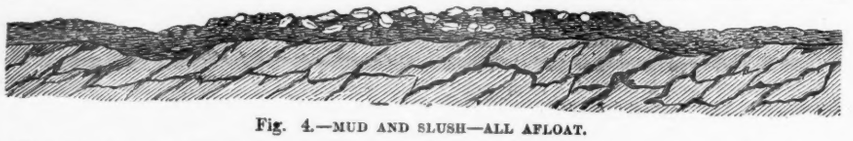


Fig. 4.—MUD AND SLUSH—ALL AFLOAT.

Now this is most pictures enough for one letter, but I would like to show you how they manage a springy place in the spring of the year. They don't make a drain and tap the spring, the way you tell them to; they just put on some loads of stones, and smooth them off with earth on top. It looks first-rate when it is new, and they do say it is the best plan, but I wish you could see what a mess it is when the ground a'n't got no bottom to it. It is just like driving over a rotten corduroy in a swamp, and if it wasn't for these spots they could carry twice the load they do. Seems to me if water makes the trouble, they had ought to put in a drain and keep the water out of the way; but I suppose they know best—they say they do. Another funny thing is the way they manage when two road districts join. They say every district must take care of its own water; so instead of turning the gutter down alongside of the road where they branch, they make the other people keep the stream in their own district, and every man of them has to drive through the mud or over the ice every time he goes to town. The other people don't care—they don't go that way.

Fig. 5.—THE MUD CURED BY A RIDGE OF STONE AND SOD IN THE MIDDLE.

Fig. 6.—WINTER WEATHER ROADS.

Swamp Muck.

No farmer who has a supply of this valuable material, should permit the opportunities presented during this month, to pass away without digging out a supply, to be hauled during the winter. After this month has passed away, the fall rains may be expected, which will flood all the low grounds, and prevent digging, or make it so uncomfortable that any excuse will be found to avoid it. No more valuable addition to the manure heap can be procured, and a supply that will last all winter, to absorb all liquid waste from stables, cow-houses, kitchen, and hog-pens, and keep hen-roosts well provided, should be procured without fail. Next spring no money can in many cases procure the supply of manure that may thus be made with only the expenditure of some days' labor now. Whenever we hear or read of the successful bringing up of a run-down farm, we invariably come across this fact, viz.: "He hauled some swamp muck." Now, whatever chemists may say about the composition of this or that material, we farmers know that we must have a certain amount of bulk in our manure. The soil needs the mechan-

ical effect of the addition of a large amount of decomposing vegetable matter, and in swamp muck we have it, finely divided, and capable of absorbing much concentrated matter. Therefore, as a basis of compost heaps, it is most excellent. It should be taken out during the present month, and put in heaps to drain. The heaps should be made high and narrow, in which shape the rain falling on them will be shed, and the muck kept dry, at least sufficiently so as to absorb large quantities of the liquids of the barn-yard. Two or three hundred loads of swamp muck would make a handsome pile of compost, when mixed with the manure of a pair of horses, four or five cows, a few hogs, sheep, etc.; and, spread on ten acres of grass land during winter and plowed in in spring, would bring a handsome crop of corn to commence with. That field might be considered out of leading strings, and able to stand alone until corn-time came around again, when it would be thankful for just such another supply.

More Labor and Manure, and Less Land.

It is a first-rate rule for farmers to take the world as they find it. There has been, for long years past, a disposition on the part of farmers at the East not "to bear the ills they have," but to "fly to others that they know not of."

How large a proportion of those who have gone to people the far West have succeeded there, it is hardly worth while to inquire, for we can not know how many of the successful ones would have been successful here. They have certainly accomplished great good for the country by their emigration. It is time now for those who are left behind to consider very carefully what course their best interests indicate. It is fair to assume that no man moves West from motives of philanthropy. Whatever may be the effect of each one's going, his own motive is self-advancement—the sort of advancement that is represented by the accumulation of money, or money's worth. They find land is dear and poor at the East, and that under the old system of farming it is difficult to make a living, and almost impossible to accumulate wealth. Disregarding the fact that they can get abundant labor, abundant manure, and cheap implements, and that they have a good market at their doors, they are apt to stop short at the fact that, farming it as they do, their only chance lies in their getting more and richer land, no matter where it may be. In our opinion, the time is past when an average, old-fashioned farmer, with his two or three sons, can make a satisfactory business of the cultivation of a large farm in New England, in the old-fashioned way. His own opinion, too, is apt to be the same, and he sends his sons to farm at the West, or to some other occupation than farming, nearer home. Instead of taking the world as he finds it, and making the best of it, he tries to find a new world, hoping it may prove a better one.

The writer of this article has had a long experience in farming, and he has seen a great deal of the West as well as the East. He believes that the radical fault of Eastern agriculture is that we try to do a great deal too much, and so fail to do any thing well. And if, with his present conviction, he had to commence a life-long career, or to lay one out for his son, he would take a farm, chosen more with reference to its nearness to a good market and to manure than for its soil, and only so large that after putting the buildings and permanent improvements in order, he would have an available working capital, in ready money, of $200 for every acre. Having this money, he would use it all in his business. Not one cent of it should be invested in stocks, or on bond and mortgage. There might, under this plan, be only enough to work 5 acres, or 10, or 20. No matter; what acres he has should be well stocked, well manured, and well cultivated, and it would certainly pay. It is demonstrated by the experience of hundreds of our farmers that it is only the *good* farming that pays. There is a point (varying according to the quality of the land and local circumstances) where the production pays less than the interest on the value of the land and the cost of labor, manure, and superintendence. *The secret of successful farming lies in turning this point on every field of the farm.* Every acre the produce of which falls below it, is a tax on every acre the produce of which exceeds it, and, too often, farmers who raise splendid and most profitable crops on a part of their land, find their profits eaten up by the interest and expenses of the rest. Now, there is no land anywhere that may not, by the expenditure of money, be made fertile. There is little land that any practical man would think of cultivating at all, that might not *profitably* be made fertile by judicious expenditure; and probably the wise use of $200 per acre on a farm where the buildings, etc., are in good condition, even in rocky Connecticut, would make it a profitable one to cultivate. Consequently, if one has a well appointed farm of 100 acres with good buildings, but no money, he would do well to sell 65 acres for $6,500, and use all the money in working the 35 acres that he retained. No two cases would be exactly alike, but it may be stated as a general proposition, that while he is now struggling to make both ends meet, and wasting interest money, labor, and manure on his whole poorly-worked farm, he might get rich from the thorough cultivation of the well-worked part of it.

Every place has some advantages, and the true plan is to appreciate and to make the most of these. The advantages of those who live at the East lie not in the land, but in the facilities for working it; consequently, their chance for profit lies not in the land, but in the facilities. They need only so much land as will enable them to turn these to the best account. If one acre will bring the largest net profit from all the facilities for cultivation and sale that they can command, then one acre is enough for them—better than two acres.

This idea might be indefinitely enlarged upon, but it is sufficient to indicate it, and to allow each man to apply it to his own condition. If we are sure of any thing connected with farming, it is that we are absolutely right in our opinions as above expressed, and that whoever adopts them and follows them judiciously, will make money.

An Egg Farm.

BY H. H. STODDARD.—*Fifth Article.*

The stock used for hatching purposes is managed differently from the layers, and needs different accommodations. The houses for sitters, fig. 1, are near the center of the farm where the granary and cook-room are located. They accommodate 100 fowls each, are not movable, and are set upon a stone or brick underpinning, 10 inches high. They are 10 feet 4 inches from the ground to the peak, and 20 feet long by way of the ridge, and 16 feet wide. The roofs are shingled, and the ends of the buildings covered with boards nailed upright and battened. The form of these houses, like that of all in the establishment with eaves near the ground, is adapted to afford as much ground room as possible in proportion to the lumber used. The roof of each house is crossed outside by a picket fence running at right angles with the ridge. This fence forms one side of the yard with which each house is furnished, and though it extends only 18 inches above the ridge of the building, the sitters, not being of a high-flying breed, will not get over it. By this arrangement exit is afforded to the fowls and to their keeper at either end of the building, into a yard which is located at either end on alternate years. The two ends of the house, one fronting east and the other west, are both provided exactly alike with doors and windows. The large doors are $6^1/_2 \times 3$ feet, opening outwards, and the smaller ones attached to them are 7×9 inches. The windows are 2×3 feet, and are hinged, opening upwards for ventilation. In hot weather the windows and doors in both ends of the building are opened wide, and to prevent the fowls escaping at the end where there is no yard, wire netting is fastened across the window casings inside, and there is an inside door of the same material hung to the stud to which the outside door is hinged. Fig. 2 gives an interior view of the house. There are four perches, each 15 feet long, and of the width and thickness of those for layers. They are placed 18 inches higher than the top of the underpinning, those nearest the nests being $3^1/_2$ feet, and those nearest the eaves $5^1/_4$ feet from the center of the building. A space $2^1/_2$ feet wide at each end of the room is left unoccupied by the perches. Three tiers of nests occupy the center of the room, each tier consisting of two rows placed back to back, and running in the same direction as the perches. There are 12 nests in each row, or 72 in all, and as each nest is 1 foot square and 1 foot high, they occupy 12 feet in length. This allows a space of 4 feet at each end of the building between the nests and the doors, and as the latter are planned of a sufficient width to admit a wheelbarrow, and the perches are made so as to be easily moved, opportunity is afforded to wheel in or out the dry earth which fills the bottom of the room nearly

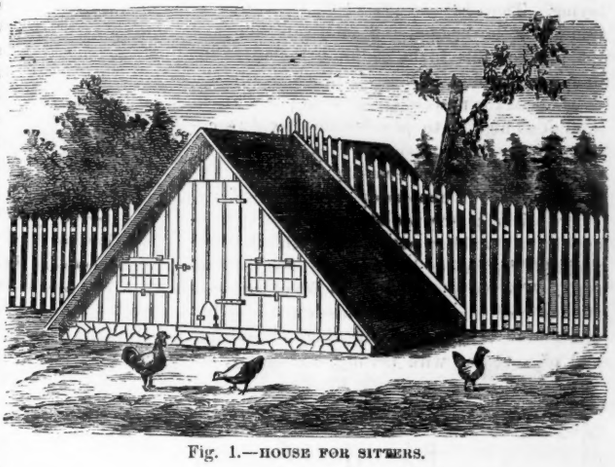


Fig. 1.—HOUSE FOR SITTERS.

up to the top of the underpinning. There are nests enough so that forty or fifty hens may be set at once, and leave room for fowls that are

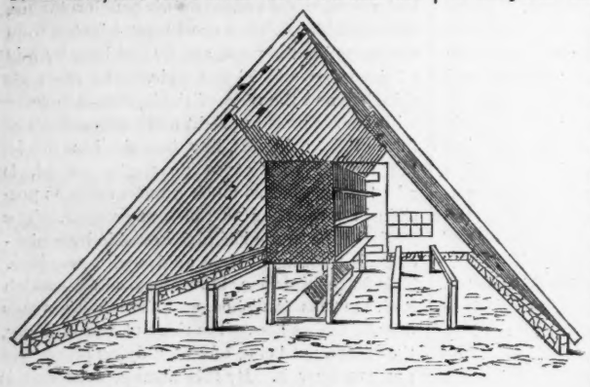


Fig. 2.—HOUSE FOR SITTERS—INTERIOR.

laying. The nests are placed so that the bottom of the lower ones is 6 inches higher than the perches, this hight enabling the attendant to avoid stooping, as there is much work to be done about the nests of sitting hens; while they are not so high as to prevent the fowls reaching them by flying upon the nearest perch, or as to render a ladder necessary. The nests are made so that the hens enter them at the front, where a 2-inch strip set edgewise prevents the eggs from tumbling out. An alighting-board projects $2^1/_2$ inches in front of each row of nests. The partitions at the backs of the nests are made of wire-cloth of a mesh fine enough to keep out rats, those at the sides of the same and of a coarse wire netting, alternately, for

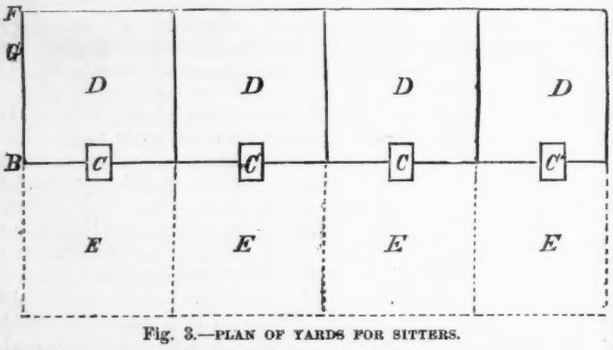


Fig. 3.—PLAN OF YARDS FOR SITTERS.

purposes described in another place. In this way the circulation of air is allowed for the health of the sitters. Sufficient attention is not generally given to this point. Fowls in a state of nature being accustomed to scratch holes in the ground under bushes, to form their nests and incubate where there is plenty of air, pant and show distress in hot weather when forced to occupy close boxes. Large doors of wire netting, with coarse meshes, not shown in the

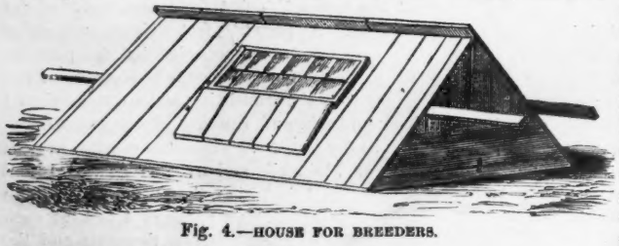


Fig. 4.—HOUSE FOR BREEDERS.

illustration, prevent the fowls roosting at the entrance to the nests at night. These doors are closed after gathering the eggs towards evening, and opened again the first thing in the morning, and are made in two parts, folding together, so that there may be room for them overhead, when raised. A piece of rat-proof wire-cloth is placed in front of a nest occupied by a hen engaged in hatching, and fastened by buttons, to keep out laying fowls by day and rats by night. To keep the fowls from using the upper part of the room as a roosting place, lath-work, a part of which is shown in the figure, extends from the top of the upper nests to the roof. Underneath the lower tier of nests is placed a feed-box, made like those with which the houses for layers are furnished, and others of the same construction should be placed on the ground at the ends of the perches, and at right angles with the latter. Five houses for sitters, each with its yard, will be required for an establishment of the size we are describing. The arrangement of the yards is shown by fig. 3. The fence, A B, is made like the buildings C, non-movable. The fences on the remaining three sides of the yards are moved yearly. Suppose that last year the yards were located at E; then this year they are at D, and E is devoted to crops. A strip of ground is left untilled near the doors of the buildings for a wagon path. To keep the yards free from taint and afford scratching ground, a part of each is plowed occasionally during the season when they are occupied by the fowls. All the fences running east and west, as F B, are composed of gates, so that by opening, for instance, at F G, through the whole range of yards, a strip of each may be plowed, and in a few days the operation may be repeated at another part of the yards. The quarters for the breeding stock combine houses very much like those for layers, and yards like those for sitters, only both are smaller. The houses for layers are movable, with no yards; the houses for sitters are stationary, with movable yards; and the houses and yards for breeders are both movable. The breeders are kept in fives and tens, no flock ever to exceed the latter number. The buildings are of two sizes, one $3^1/_2$ feet wide, 4 long, and $2^1/_2$ high, and the other of the same width and hight, and $7^1/_2$ feet long. There are no runners, and the doors are few in number, though comprising the whole roof; each house is furnished with but one window, and but two or three nests are necessary, and one perch. Otherwise the houses are like those for layers on a reduced scale. They are designed to be moved by two persons, adjustable handles being attached at either end for this purpose. In this way, being without floors, they are shifted to different parts of the yards, and set on ridges of earth raised by the plow. In winter each stands upon the edges of a dust-bin of 2×8-inch plank. The arrangement of gates to admit the team for plowing, the stationary fence at one side of the yards, and the shifting of the latter to allow tillage, are the same as for sitters, with the exception that the stationary fence is entirely detached from the houses. The movable fences for the yards of both sitters and breeders are made as follows: Pickets 2 inches wide, $^1/_2$ inch thick, and 6 feet long, are nailed to two rails 3 inches square, and 12 feet long. At both ends of every rail, U-shaped pieces of stout, hogshead hoop-iron are fastened by screws so as to form staples through which round posts, $7^1/_2$ feet long, and $2^1/_2$ inches in diameter, pointed at both ends, are thrust, and set in the ground. The rails in the alternate sections are at such distances apart that the tops of the pickets shall be in line, and the staples not interfere with those of the adjoining sections. Each post is supported so as to resist the winds to which the fences expose so much surface, by a brace upon the outside of the yard (fig. 5). This brace is

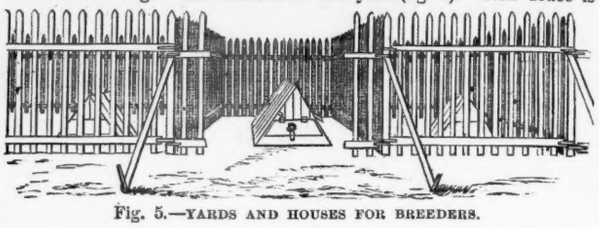


Fig. 5.—YARDS AND HOUSES FOR BREEDERS.

made by sawing a rail stick in two, and furnishing each end with a staple like those upon the rails. The staples are fastened upon the braces in an obtuse angle, and the ends of the braces are beveled, the better to fit the posts. One of these staples passes around the post between the two staples of the upper rails, and through the lower one, which reaches to the ground, a short stake is driven into the earth, with its top inclining away from the fence (fig. 6). The gates which compose the entire sides of the yards where the team passes in plowing, are hinged to stout posts, which are braced in a similar way. The stationary fence represented in fig. 1, and the corresponding one which forms a part of the breeding yards, are made substantially with posts of good size, deeply set in the ground, so as to stand without braces. The gates occupy a space of 12 feet each, the same as a section of the movable fence. The smaller breeding yards for five birds are 12 feet square (fig. 4); the larger ones for ten birds are 24 feet square, and the yards for sitters are 48 feet, or in each case a fraction over these figures, to allow for the room occupied by the posts; the design being to use one, two, or four gates, or movable sections, to make one side of a yard. The openings between the pickets are $2^1/_2$ inches wide for breeders; for sitters which are of larger breed, 3 inches are allowed. The pickets are nailed on the yard side of the rails, to prevent fowls alighting on the latter. The gates which divide the breeding-yards are boarded for 2 feet at the bottom, to keep neighboring cocks from fighting.

Fig. 6.—MOVABLE FENCE.

Gathering Sea-Weed for Manure.

Those who live inland can hardly appreciate the value a shore farmer attaches to a sea-weed privilege. Many of the shore farms are naturally sterile, and were not their owners able to draw fertilizing material of various kinds from the sea, their cultivation would, in many cases, be abandoned. Their fertilizers are fish, shell-fish of various kinds, salt-marsh mud, and the sea-weeds proper, all of which furnish valuable plant-food. Fish guano and cancerine, made from king-crabs, are now articles of commerce, and are used at great distances from the coast; but sea-weed is of so bulky a nature that it is only available to those farms that are within hauling distance of the shore. Two very distinct things are popularly known as sea-weed. First, the sea-weeds proper, or algæ, those flowerless plants which, having no true root, draw their sustenance from the water which surrounds them. These are usually found on rocky coasts, and are thrown up by the sea, or are torn from the rocks to which they are attached. Kelp and Rock-weed are familiar examples of these. Secondly, a flowering plant, Sea-wrack, or Eel-grass, which roots in the muddy bottoms along the creeks and bays of the coast. This sea-weed is largely used upon the East End of Long Island, and in other localities, and an account of the manner of collecting and using it is sent us by Mr. S. T. Ferry, of Southold, from which we extract as follows: The sea-weed principally used on the East End, known as Eel-grass, is distinguished into "Bay sea-weed" and "Creek sea-weed," or, as it is generally called, "Creek-mud."

Fig. 1.—GATHERING SEA-WEED—USING THE TONGS.

BAY SEA-WEED grows in shallow water, upon a sandy bottom, and is torn up by the roots, or, more properly, broken off just above the roots by violent winds, and cast upon the shore in large quantities. It is generally hauled to the barn-yard and hog-pen, where it absorbs the waste and makes a valuable manure. It is also dried, and used for littering stables to some extent. Few, comparatively, enjoy the benefits of the use of bay sea-weed, as only those who control the shores or beaches have the privilege of taking it away. It is true all may remove it from the bed where it grows, but that is a slow and laborious operation, and pays but poorly.

CREEK SEA-WEED grows usually on very muddy bottoms, and ripens about the first of August, when the harvest generally commences, although in creeks where landing-places can be secured, the anxious ones commence harvesting early in July, thereby "killing the goose that lays the golden egg," for the material taken in such an immature state not only shrinks badly, thereby causing loss, but the roots are weakened, and the crop inevitably grows smaller each year, or, as the farmers say, "it grows thinner." This would seem to be a subject worthy the attention of our State Legislature. Creek sea-weed is taken by persons in boats, or, more generally, on flats, as the labor of baling is thereby saved. The implements used are a pair of tongs made of two pieces of tough wood, from six to eight feet in length, according to the depth of water or the size of the person who uses them, and riveted at about one third of the distance from the ends held in the hand. The tongs are thrust into the water wide open, and closed upon as much of the weed as possible, when two or three twists or turns are made, by which the roots are broken, and then sea-weed, mud, small eels, round clams, crabs, etc., the more of these the better, are all lifted on board. Some prefer a large amount of mud, and such use heavy, five-pronged rakes.

The sea-weed is piled in large heaps, and after heating a few weeks is hauled directly to the field, where it is left in small piles until late in the autumn or a thaw in winter, when it is spread and allowed to remain upon the surface until spring, and is then plowed under for corn. It is almost invariably used upon sod ground, and if not applied too frequently it will commonly produce on our shore farms as good a crop of corn (for which crop it appears to be the best adapted) as an equal quantity of barn-yard manure.

A moderate estimate of the number of loads of Creek sea-weed used annually, in the town of Southold, can not certainly be less than ten thousand two-horse wagon loads. It sells green, that is, before it is seasoned or dries up, at fifty cents per load, and is worth when upon the field, $1.25 to $1.50 a load, according to the distance hauled. From twelve to sixteen loads is the quantity that generally applied to the acre, although a larger quantity may be safely used.

Fig. 2.—GATHERING SEA-WEED—UNLOADING IN SHALLOW WATER.

CLOVER FOR PLOWING UNDER.—"An acquaintance of mine," writes a correspondent in Connecticut, "who has greatly improved his farm by plowing in clover, says he would not give any thing for the common small variety of red clover for a fertilizer—that only the large Northern variety that grows but once in a season, is of any value for that purpose. Is he correct?"—We think not. In fact, we are sure he is not. A *given quantity* of the ordinary early red clover is worth as much to plow under for manure as the late variety, and probably a little more, as it has more leaves and less woody stalk. The late variety grows longer and larger, and where clover is grown merely for the purpose of plowing under for manure, it may be better to sow it than the ordinary so-called

"medium clover." This is the opinion of many experienced farmers in Western New York, while others who have tried both, prefer the ordinary variety. But the truth is that the old practice of sowing clover *merely* for the purpose of plowing under, is almost entirely abandoned in that section. The land is kept in clover two and sometimes three years, and then as much of it plowed under as can be spared. Nine farmers out of ten prefer the medium variety.

Walks and Talks on the Farm—No. 93.

The sharp advance in the price of wool will be of great benefit to our agriculture. It will save the sheep interest. I have done all I could, during the depression, to persuade farmers not to sacrifice their sheep, but rather to weed out the poor ones and retain their best ewes, take good care of them, and breed to the best rams they could find. Those who have done so will now get their reward for their perseverance and common sense. There is nothing more certain than that a great leading product like wool, or wheat, corn, oats, pork, or beef, can not long remain below the cost of production. And a farmer can not make a greater mistake than to abandon wool-growing, or wheat-growing, or beef or pork growing, during a period of temporary depression, and of engaging in something that for the moment happens to be paying unusually well. Every body will now rush into wool-growing. Pork and beef are low, and thousands of farmers who have been endeavoring to improve their stock of hogs or cattle, will now neglect or sacrifice them; whereas the wise farmer will hold on to his stock and continue to improve it, and by the time the tide turns, as turn it must, he will be ready to avail himself of the increased demand for his products. A year ago this spring I bought potatoes to feed pigs at ten cents a bushel. This spring they were worth $1.50, and yet we had a better yield last year than the year before. The price was so low in the spring of 1870 that farmers planted far less than usual.

Take one year with another, that farmer makes the most money who pursues the even tenor of his way uninfluenced by the fluctuations in the price of his products. It may be said that this is plodding work, calling for little intelligence and no enterprise. But this is a mistake. There are abundant opportunities for the exercise of skill, intelligence, patience, perseverance, industry, enterprise, and every thing that makes a man. A farmer had far better occupy his thoughts and his energies in determining the best method of enriching and preparing his land for potatoes, and how to plant, cultivate, dig, and market them, rather than in worrying, unsatisfactory, and uncertain speculations as to whether the crop will or will not be largely grown and command a low or a high price. Like other men, a farmer has only a certain amount of energy, and his success depends very much on its judicious and economical employment. The less of it there is wasted in useless anxiety and worry, the more will there be left to manage the farm. And let me tell you, it requires more brains, more energy, more thoughtful discrimination and good judgment, greater activity, tempered with prudence and common sense, to manage a farm properly at the present day, with American machinery and old-country help, than it does to manage a church choir or run the Union Pacific Railroad. You have to work yourself and keep others at work; to lay plans and change them half a dozen times to suit the weather; to keep all your tools, implements, and machines in working order and in their proper place, ready for use at any moment. You must be diligent to know the state of the flocks and look well to the herds, to see that they are in good health and are fed regularly, to give them an occasional change of pasture and a constant supply of water, and (to give a bit of my own experience) to see that the fences are in repair, and that the cows do not get into the Deacon's corn.

I think the Deacon will beat me this year in corn. He drew out his manure from the yard this spring, and plowed it under for corn. He put on only a very light dressing, and it was rather coarse and strawy, but it seems to have done considerable good. At any rate, his corn looks better than mine. The Deacon thinks that long, coarse manure is of great benefit to corn from its mechanical effect in lightening the soil and making it warm and porous. He did not put enough on, and it was not sufficiently decomposed to do much in furnishing plant-food to so vigorous and rapid-growing a crop as Indian corn. I think the Deacon, too, for once cultivated his corn better than I did, and I am inclined to believe that this is the main reason why his crop is better than mine. We both planted in hills this year, so that the manner of planting could not make the difference.

If I had the time I would try to raise a superior variety of Diehl wheat. All things considered, it is, for this section and on dry, rich, clean land, the best kind of white wheat yet tried. But it varies greatly in character. In the first place it is almost impossible to get it pure, and even the pure Diehl wheat itself, and, in fact, the different kernels in the same head, vary greatly in quality. The plan to adopt is to take a number of the finest heads of Diehl wheat that can be found, and from these select the best kernels—such kernels as an experienced miller wants, to make the choicest flour. Sow these kernels, and next year repeat the process, selecting out the best, and continuing the practice until the desired quality is fully established. I would myself give five dollars a bushel this year for absolutely pure Diehl wheat, but my plan contemplates far more than this. I want it not only pure, but the best specimens of the breed. Halleck's pedigree wheat has proved a failure, but this was due to the fact that he aimed at quantity rather than quality. What we want is not so much a wheat that *is capable* of producing a large yield per acre. We already have varieties that are capable of producing more wheat per acre than the available plant-food in the soil will support. In other words, so far as quantity is concerned, our varieties are better than our soil. It is no use getting a variety capable of yielding 50 bushels per acre, and sowing it on land not rich enough to grow twenty-five bushels. Our climate is better than our farming. The person, therefore, who proposes to improve a variety of wheat had better aim at superior quality rather than at great productiveness. If he can secure the former, the latter will depend principally on the condition of the soil.

One of my neighbors had a field of low land that has been little better than a swamp ever since it was cleared. He cut an open ditch on one side of it, and then laid a few stone drains across the field, which discharge into the open ditch. It was not by any means thorough drainage; so far from it, indeed, that it was deemed desirable to plow the field into lands only about four yards wide, and leave very deep, dead furrows to carry off the water. Last fall he sowed the field with Diehl wheat, and he had the heaviest crop of wheat I have seen this year. The straw was about five feet high, and stood up stiff and straight, and was as bright as could be desired; and, notwithstanding the mucky character of the land, the clover had taken finely. I have rarely seen so great an improvement at so small an expense. But the truth is, these low, swampy lands, abounding in organic matter, are of such a porous nature that an underdrain will dry the soil to a far greater distance than it will on ordinary upland. If a good outlet can be secured, one or two open ditches, three or four feet deep, with a few underdrains, would render many of these swampy fields the best land on our farms.

Mr. John S. Bowles, of Ohio, writes me as follows: "I see that you advocate a peculiar system of raising swine, which entirely meets my approval, only that I do not see how it is possible for a farmer to follow it for more than one year. You say, get good, coarse brood sows, Chester White or Magie, put them to an Essex boar, and the pigs will be splendid, even superior to thorough-bred Essex. So far, all right; but what am I to do next?" Do the same thing over again, or, better still, select a few of the largest, healthiest, and most vigorous sow pigs, obtained from the first cross, and put them to a thorough-bred Essex. You will, judging from my own experience and observation, get as good pigs for common purposes as a man can hope to see. If sows from this second cross are bred to an Essex boar, the pigs would make splendid "jointers" at four months old, or might be profitably kept nine or ten months and fattened for pork. For the latter purpose I do not think I should want a larger infusion of Essex blood. But for what the London butchers call "jointers," that is, pigs three or four months old that dress from 60 to 70 lbs., another cross or two of Essex blood might be desirable.

I do not happen to know of any really thorough-bred animals of any kind, cattle, sheep, or swine, that I should consider as profitable to raise solely for the butcher as animals having a dash of common blood in them. And the reason is that the perfection of an animal that is kept solely for the purpose of putting on flesh and fat in the shortest possible time is not the perfection of a breeding animal. Early maturity is obtained at the expense of ultimate size and longevity. Bakewell's Leicester sheep, which, so far as early maturity, lightness of offal, and fattening qualities are concerned, have never been excelled, and which have done so much for English sheep and English farmers, have themselves become extinct. They did their work and did it well, and then disappeared as a distinct breed. It will be so with Essex swine. They will, if pure-bred, refine every breed they are crossed with, and in time they will cease to be needed. For my part I am willing to avail myself of them so long as they will improve our common race of hogs, without speculating as to their fate in the future. There are over thirty million pigs in the United States, and it will take some years to bring them to perfection. There is room enough, and work enough, and occasion enough for all good breeds of cattle, sheep, and swine in this country. They are all needed. There is no breed that is absolutely best everywhere. There is plenty of room for the so-called China, Poland, or Magie hogs, as well as for the Ches-

ter Whites, Yorkshire, Berkshire, or Essex. I have never said that I thought the Essex were the best breed. All I have ever claimed for them is that, when pure-bred, they will *at once* greatly improve our common stock. What the result will be of continuing to breed from these crosses does not particularly trouble me. One thing is certain, however, it will not do to breed cross-bred animals together. We must *always* use thorough-bred males. I think Mr. Bowles and all other experienced breeders will agree on this point.

Mr. Bowles says the wheat crop in his section is poor, and will average only 8 bushels per acre. "Fall barley pretty good; spring barley, none at all. Oats, a little. Hay very poor on poor land, but pretty good on good land. I think I raised," he says, "two tons per acre all round. One little patch of clover of an acre and a half had six good two-horse loads on it; I presume equal to 3½ tons per acre. You seem to think," he adds, "that clover can not add to the fertility of a soil by being mown and hauled away. I say it *does* add to the fertility. I account for it in this manner: The atmosphere always contains a vast amount of fertilizing matter. Clover is a plant that draws a great deal of its support from the atmosphere." This is precisely the point that is not proved. "Clover," he continues, "is a vehicle for conveying fertilizing elements from the atmosphere to the soil. The greater the growth of clover the greater the size of the vehicle, and the greater its work. So convinced am I of the truth of this theory that I apply all my manure as a top-dressing to grain on which clover is sown. The manure makes a large growth of clover, and the clover roots make still more manure. What clover hay I feed (which is all I grow) goes on the land again, or if I pasture it with hogs it then returns to the land. The point that I wish to impress upon you, however, is that after a crop of clover hay is hauled away, even then the ground is richer than before the clover was sown."

I should be glad to be impressed with the truth of such a pleasant doctrine, but, unfortunately, it has no sound basis of facts to rest on. Mr. Bowles' practice is much better than his theory, for he seems to be careful not to sell any of his clover, but to consume the whole on the farm, and also applies manure in order to make the clover grow more luxuriantly. This treatment will make his land richer year after year; but if he should sell the clover, the probabilities are that the land would sooner or later become too poor to grow profitable crops of clover at all. But even then it might still be rich enough, with the aid of a summer fallow, to produce a fair crop of wheat. The truth is that clover, turnips, and other renovating crops require a richer soil than wheat. If a soil is rich enough to produce a heavy crop of clover, it is rich enough, even after the clover is grown and removed from the land, to produce a fair crop of wheat. But continue the practice of raising and *selling* clover, and the yield of clover will gradually and perhaps rapidly diminish, followed by a decreased yield of wheat.

We can not raise too much clover, but it must either be plowed under or fed out on the farm, and the manure carefully saved and returned to the land. Any other doctrine is unsound in theory and detrimental in practice.

American farmers can not be too often reminded that what we should aim at is, fewer crops, cleaner culture, and a larger yield per acre. We are a great beef-eating people, and are taking kindly to good mutton when it can be found. Already a large proportion of the beef consumed in the Atlantic cities is raised west of the Mississippi. The price for the moment happens to be low, but it will not remain so long. The farmer who raises good beef or mutton in New England, New York, Pennsylvania, Ohio, Indiana, Illinois, Iowa, or any of the older settled States, need not fear that the half-wild cattle of Texas or elsewhere are going to drive him to the wall. There is no sort of danger. Unaided, nature can not compete with agriculture any better than the Indian can compete with the Anglo-Saxon. Our population is rapidly increasing, and the demand for meat will continue to increase from year to year. The causes which lead to an over-supply for a few months are only temporary. The demand is unceasing, and he is a wise farmer who looks ahead and quietly and perseveringly improves his farm and his stock. He is certain of his reward. Wool, mutton, beef, pork, cheese, butter, milk, poultry, and all other animal products will be wanted more and more as the condition of the world improves. There are millions of people, even in Europe, who seldom taste fresh meat. An Irishman eats double the meat and does double the work here that he did at home. Even the Chinese in this country eat meat as soon as they can earn money enough to buy it.

The point I want to get at is this: We have a large country. Land is comparatively cheap, and labor comparatively high. Crops are great in extent but small in yield, and many of our farms are getting more weedy and less productive. Now, what we must aim at is to make them cleaner and richer. We must devote less land to the production of wheat and other grain that is sold, and more to the production of such crops as are fed out to animals on the farm. We all know that it is far better to raise 300 bushels of wheat from ten acres than to plow, seed, and reap twenty or thirty acres to get the same amount. We obtain no more money for the crop in the one case than the other, but the profits are quadrupled. The market is not glutted with grain, and there will be more meat and wool to sell, and more manure to use. To bring this about, we must summer-fallow when necessary; sow clover more frequently, and not sell a pound; let our land lie longer in grass; and when it is broken up and planted to corn, cultivate it very thoroughly, and not overcrop it before it is seeded down again. In some cases it will pay to summer-fallow, and then seed the land down to grass without a grain crop. We must aim to save labor, enrich our land, reduce the area under tillage, and, when it is plowed, cultivate thoroughly to kill weeds and develop the latent plant-food in the soil.

Plant-food is the farmer's capital. It is present in large quantities in most of our soils, but a great proportion of it lies idle. Our profits will be in proportion to the amount of this plant-food that we can render available and keep in active circulation without allowing it to diminish faster than fresh quantities are developed from the soil by the decomposing and disintegrating action of the atmosphere.

How Much Seed, and How should it be Sown?—A bushel of wheat contains 660,000 grains. If this quantity should be spread equally over an acre of ground, it would give nearly 10 square inches of space for each plant; each plant would be a little more than 3 inches from the next, and there would be 15 plants to each square foot. If the seed were sown in drills 9 inches apart, there would be a plant to each inch in the drill. It is well known that in broadcast sowing much of the seed is covered too deeply, and some not sufficiently, and thus possibly a half of the seed sown is wasted. In drill-sowing a much greater proportion of the seed produces returns, because of its even covering and more regular germination. If each seed should produce but one perfect ear, the yield would be over 30 fold, but it is safe to say that every healthy wheat-plant will produce at least three stalks, so that, should the whole of the seed sown mature, a crop of 90 bushels would be the result. There is no doubt but drill-sowing will produce a better yield than broadcast sowing, as much more of the seed will successfully germinate, and the expense of drill-sowing being less than hand-sowing and harrowing afterwards, we would advise all those who can buy or hire a drill, to abandon broadcast sowing.

Lime and Lime-Kilns.

The use of lime in agriculture dates back many centuries in the Eastern world. From the commencement of the Christian era the farmers of the most civilized parts of Europe were in the habit of spreading it upon their fields, and at the present day the custom is so thoroughly established that no rotation, whatever course it may consist of, is complete without a liming. In Europe, farmers have been for hundreds of years working to increase the fertility of their farms, while during the short time our lands have been under cultivation, they have been subjected to a process of exhaustion. This operation is now at an end, the process can go no further, and it is absolutely necessary that every possible effort be exerted to restore our land without delay, or impoverishment must be the result. Large tracts of land, more especially in the Southern States, are abandoned so far as agriculture is concerned, and it needs no prophetic eye to see in advance many Western lands in the same predicament. No fertilizer exists in such abundance, or can be produced in condition fit for use so inexpensively, as lime. Protruding almost everywhere above the earth's surface, it can be procured in almost every locality without great expense of carriage; in fact, we doubt whether there are so many as one fourth of the farmers of the United States or Canada that can not procure limestone within half a dozen miles of them.

The mode of preparing lime is so simple, that farmers who live in those districts where it is regular employed, commonly prepare it for themselves. The eastern part of Pennsylvania, and the adjoining parts of New Jersey and New York, comprise within their limits a large majority of the kilns in which lime is burnt for agricultural purposes. Almost every farm has a lime-kiln as part of its establishment, and lime-burning takes place regularly each year. The kilns are structures of stone, for convenience erected in a bank, so that limestone and fuel can readily be brought to the top. They are built about 16 to 20 feet square and 12 feet high (fig. 1). The inside is built up round, gradually widening until half up; then it is drawn in again, so as to make it something of the shape of an egg. Smooth stone, that will stand fire, needs to be used for the inside. An arch is made in the front, from which the lime is drawn when ready. The kiln is charged by alternate layers of limestone and fuel until filled;

the archway is then built up so as to regulate the draft, and fire is set. A regular, steady heat is kept up until the stone is well ignited, when

Fig. 1.—A FARMER'S LIME-KILN.

the drafts may be closed and the fire moderated. Ten days will suffice to calcine the lime, and it may then be drawn off for use. Many farmers, however, who find it difficult to build a kiln, avoid the expense by putting up pits. These are piles of stone and fuel, properly arranged, around which are loose blocks of stone laid up with earth or clay to close the interstices; a few rough boards are then put up around, and held by stakes, and clay rammed down between them and the pit, to confine the heat. As the fuel and stone burn down and the upper part falls in, fresh wood and stone are put in, and the heap kept covered. The top needs a covering of sods, damp grass, and clay, to retain the heat. This needs constant attention, but where lime and wood can be procured, no money outlay is necessary. Where labor and material are plentiful, these are all that is required. Three cords of wood will burn a pit of five to seven hundred bushels of lime, if used economically, and the fire not allowed to blaze out. Figure 2 shows a draw-kiln, or one that is always burning and yields lime twice a day. It is charged regularly with limestone and coal at the top, and every twelve hours the lime is drawn out at the bottom. These are used where lime is burnt to supply a large demand, and in some localities in Pennsylvania the demand is so great as to keep large numbers of these kilns continually working. Some companies employ a capital of two to three hundred thousand dollars, and ship their lime by schooners to Delaware, Maryland, and Virginia. These establishments are on the Schuylkill river, and hundreds of vessels load there each year to supply the farms of those States, a great many of which can be reached by the waters of the bays and large rivers. Lime is now produced at these kilns for eight cents per bushel.

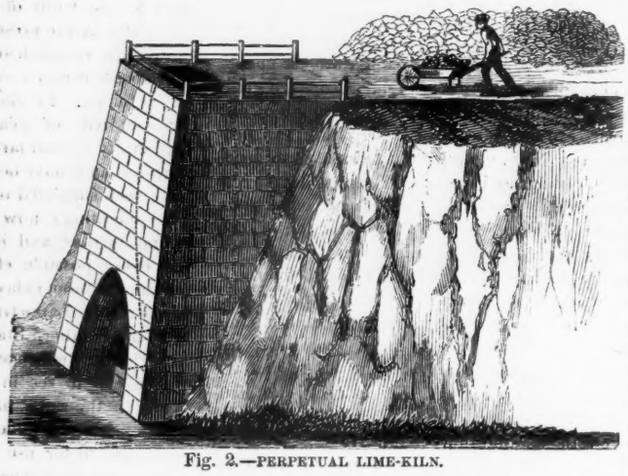


Fig. 2.—PERPETUAL LIME-KILN.

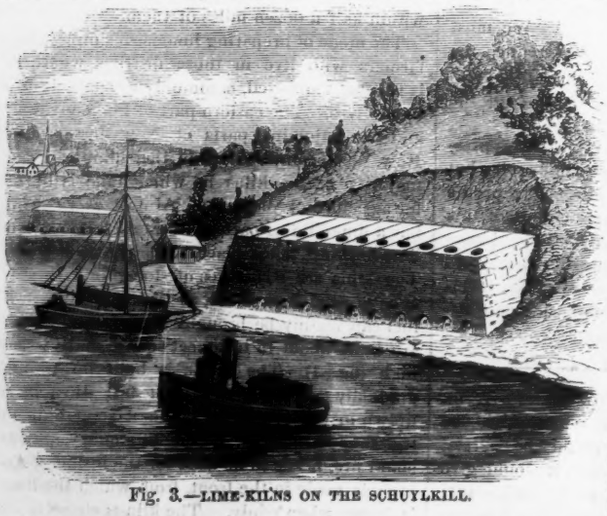
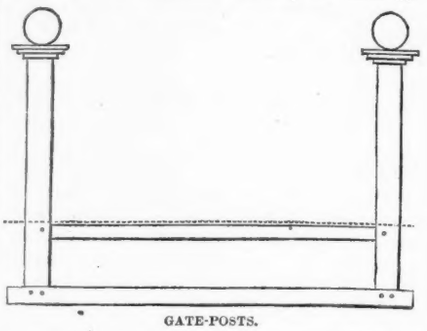


Fig. 3.—LIME-KILNS ON THE SCHUYLKILL.

MUTTON SHEEP.—Rhode Island is famous for its fine mutton, the South-Down of the islands of Narragansett Bay rivaling that of England. On Conanicut, Mr. Tucker makes it pay reasonably well, and has the satisfaction of serving the public with a prime article of meat and wool. He had 160 sheep last fall, raised from them 192 lambs, which he sold for $5 each, and sheared from the sheep 3½ pounds of wool each, worth fifty cents a pound. The sales from his flock, then, are 192 lambs, $5=$960; 480 lbs. of wool, at 50 cts.=$280; whole amount, $1,240, or $7.75 for each sheep. A Pennsylvania farmer bought last fall eleven sheep for $20.90, and sold wool this spring for $12.90, and lambs for $36=$48.90, or $4.44 for each sheep. They do these things a little better in Connecticut. A farmer there bought ten sheep in February, for $40. Sold from them ten lambs at $7 each=$70, and wool $15=$85 for the whole, or $8.50 for each sheep, realized in six months from purchase. The capital is still unimpaired, and good for another year. CONNECTICUT.

Gate-Posts.

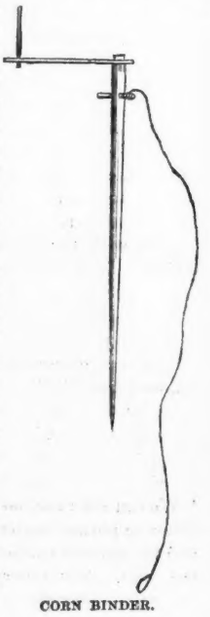
Notwithstanding all the improvements in gates, the old-fashioned swing-gate still remains master of the situation. If only the chief defect inherent in it—that of sagging—could be prevented, we prefer it to any of the new-fangled ones. We have, for several years past, arranged our gate-posts in such a manner that sagging and heaving by the frost are both impossible. The posts are framed in a stout sill; about two feet above this a girt is framed in; this acts as a brace in such a manner that the posts are rigidly kept in place. A trench three feet deep is dug, the frame and posts are set up therein, and the earth is well tamped and compacted around the sill. The upper girt need not be sunk more than a few inches beneath the surface, but the earth should be well tamped and forced under it, that it may not suffer from loaded wagons being driven over it. These posts may be guaranteed to stay where they are placed until inevitable decay overtakes them. This may be put off by using seasoned timber well soaked in crude petroleum.



GATE-POSTS.

Harvesting Corn.

Corn should not be left until the frost has injured the fodder, before it is cut. The value of corn fodder is becoming better appreciated every year, and more care is taken in curing and preserving it. The first care, then, should be in cutting it before it is damaged by frost or over-ripening. As soon as the corn is glazed, it may be cut. This is a tedious operation, but a division of labor will lighten it. The usual plan is to cut a few hills and set the stalks around a hill not cut off, which helps hold them up; then twist the top of one of the stalks round the bundle to hold it together, and make this the foundation for a shock, which is built up by bringing several armfuls and placing them around the foundation, already set up, until the shock is sufficiently large, or a certain number of hills are cut up. Then the workman lays down



CORN BINDER.

his knife, and ties the shock, selecting a pliable stalk for this purpose, and passes on to make another. Instead of this, let the men pass along the rows, each man taking three rows, and, pushing the hills from him, cut off each hill with a single blow, laying the stalks down with the tops towards the next row, the next man laying his stalks with the tops towards those cut by the first one. Thus the stalks will lie in double rows, the tops towards each other. When a few rows have been cut, one can turn in, and set up and bind. When the shock is set up, it may be readily tied by using the binder figured on the preceding page. It consists simply of a stout wooden pin, with a crank on the end of it; a small pin is passed through it, to which is fastened a cord with a loop on the end. The pin is thrust through the loose stalks, the cord is passed around it, and the loop passed over the small pin. The crank is turned until the shock is drawn sufficiently together, when it can be easily bound with a stalk, without danger of its breaking.

With the labor divided in this manner, one cutting and one setting up and binding, much more corn can be cut in a day, than on the old plan, by which much time is lost.

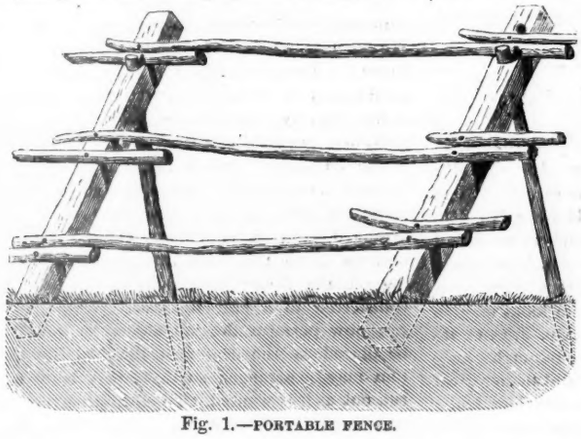


Fig. 1.—PORTABLE FENCE.

Portable Fences.

A subscriber from Kansas sends us drawings of some fences, which we here illustrate. That shown in figure 2 is similar to one in common use; the chief difference, which seems to be an improvement, is that a pin is inserted in one stake to support the lower rails, instead of a separate stake, or a stone, or a block, as is generally used. The stakes are driven into the ground, as shown by the dotted lines. Figure 1 represents a fence which has been found sufficient to turn Texan cattle, which are largely pastured in Kansas, and which are supposed to have little respect for fences. The principal post is placed in a leaning position, and is supported by a stake, which is driven into the ground. In removing this fence, it is necessary to remove the rails of each alternate panel only; the other panels then can be moved whole.

Fig. 2.—FENCE.

WEIGHING STOCK.—It would be a profitable investment for almost every farmer to have in his barn a platform-scale capable of weighing at least 600 lbs. As it is, most farmers are at the mercy of every one they trade with—millers, butchers, and merchants. It is a good business fashion for a man to know exactly how many pounds of grain or pork he has in his wagon when he starts out to deliver it, and he will then know beforehand just how much cash he should bring back home. A farmer, as a rule, can not estimate as accurately as he should, the live weights of stock; it is the consequence of not using the scales sufficiently often. He should know the weight of his shoats monthly, and the weight of each hog when put up to fatten, and its dressed weight when made into pork. Then, if he weighs his feed as used, he can tell what profit he makes. In the mean time he will learn to judge of the value of a live hog, and if an occasion occur, as it often does, when he has a chance to buy a few head, he will be able to tell pretty nearly what he can afford to give for them. The fact is, the scales are one of the most valuable implements a farmer can possess, and he should not, if he can help it, be without them.

Working Oxen.

The patient endurance of neglect, and the heavy work performed by oxen, make them valuable on many rough or partially cleared or broken-up farms. On smooth land in fair condition, that has been well tilled or where machinery is in use, their gait is too slow to be profitable. Their drivers seem to become inoculated with the same deliberateness of motion, and on farms where vigor or promptitude of labor is required, their use becomes intolerable. Where there is a diversity of labor to be undertaken, however, they have advantages over horses. Where a furrow, on account of stumps, rocks, or fast stones, can not be plowed through without often stopping, where logs are to be hauled, where ditching has to be done, or where work is unsteady and many intervals of idleness come in between working spells, there they will be found more useful than horses. There is no harness to be broken by sudden jerks; when a heavy pull is needed, they will throw all their weight in with steadiness, and try and try again, without floundering around, or seesawing, as many horse teams will do in the hands of injudicious drivers. They will work anywhere with safety, and if hopelessly stuck in a soft place, will remain with patience until extricated; and when labor is over for a time, they can be turned out anywhere to graze or browse around in the woods, to be brought home when wanted, and hitched up for work again in a few minutes. They will exist under treatment that would ruin any horse; never have heaves, colics, or bots, or ringbones, or splints, or the numerous ailments that render horses unsound; and if by any accident they become disabled, if they have been kept in good condition, the butcher is always ready to take their carcass. These, to many men, are valuable considerations, and yet, though our advice

Fig. 1.—CANADIAN MODE OF SHOEING OXEN.

has often been sought on the subject of using oxen in preference to horses in certain conditions, we have been very cautious about recommending their employment to some men, mainly for the reason that few have the tact and patience necessary to use them satisfactorily. Great gentleness and patience are necessary, and a hasty-tempered person would never get out of a yoke of oxen half the work they would be capable of performing. Oxen should in all cases be kept shod, more especially on the front feet, which often become so tender as to almost cause lameness, before it is suspected. There is no difficulty in shoeing oxen if a proper frame is provided. As they will not permit their feet to be handled like horses, it becomes necessary to sling them up, so that the feet can not touch the ground; they will then remain tractable. The want of such a frame is often a source of expense to the owner of a pair of oxen, who is sometimes compelled to send them many miles to be shod, occupying a whole day on the journey. A few such trips would pay for a frame, when the shoes might be nailed on at home. We give in fig. 1 a sketch of the necessary frame, which speaks for itself, so far as its general construction is concerned. The ropes are arranged over the rollers so that the turning of the center one draws up the ropes over each of the others, and so lift equally. The hoisting part needs to be made sufficiently strong to bear the ox. Fig. 2 shows a rough-and-ready

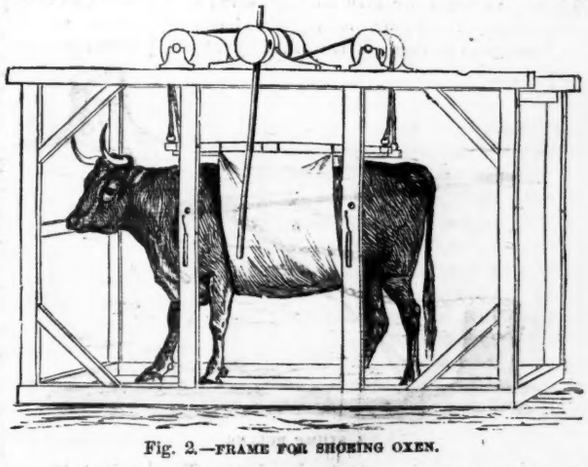


Fig. 2.—FRAME FOR SHOEING OXEN.

plan of shoeing oxen which we have seen among the lumberers of Canada. The ox is thrown and held down while the shoes are fixed, the feet being kept drawn up tightly together. The animals seem to understand it and keep comparatively quiet. Ox shoes (fig. 3) need to be made much lighter than horse shoes and are differently shaped. Most blacksmiths know

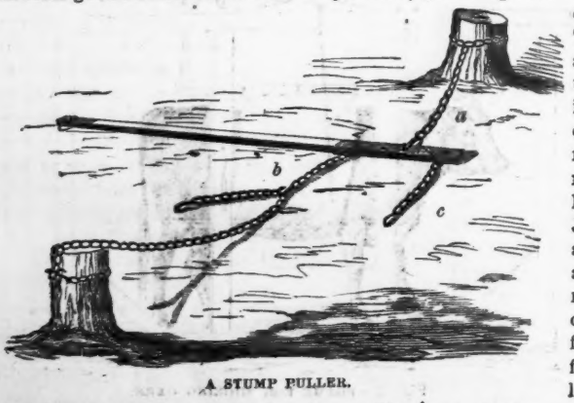
Fig. 3.—OXSHOES.

how to make them, yet we have found some that did not; we therefore give a representation of the shape of the shoe, two of which are required for each foot, a left and a right one. Any one that can nail on a horse shoe can fix an ox shoe. The Devon cattle make by far the best working oxen. They are active, strong, and tractable, easily kept and fattened, and make first-class beef when slaughtered.

PICKLING SEED WHEAT.—The results of experiments have fully substantiated the benefit, as a preventive of smut, of pickling the seed preparatory to sowing it. The pickle may be either common salt dissolved in water, strong enough to bear up an egg, or sulphate of copper, at the rate of one pound dissolved in eight gallons of water. The pickle should be placed in a tub, the seed poured slowly into it, so that the light grains will float; these are to be removed, as they should not be sown. The seed may soak for a few minutes, then take it out and put it in a heap on the barn-floor to drain; after draining, mix it with some fresh-slaked lime, until it is dry, then sow it immediately.

A Simple Stump Puller.

W. S. Ramsey, Butler Co., Pa., wants a stump puller. In reply we give an illustration of a simple but yet very efficient one, which has done us some good service. It is worked by a lever,



A STUMP PULLER.

moved preferably by a stout yoke of oxen. The end of the lever is supplied with a strong clevis, sufficiently long to pass around so as to be used on either side. The fulcrum of the lever consists of a chain which is to be fastened to the largest stump near (*a*); on each side of this is a clevis with a short chain and hook attached. To work the machine, fix a chain to the stump to be pulled, hook on to one of the short chains of the machine (*b*), draw up the oxen until that chain is tight; hook on the other chain (*c*), turn the team, and draw up as far as they can go; hook the chain (*b*), turn and draw again, and so repeat until the stump is drawn out. Then fasten on to another, and repeat the process until all the stumps are out within reach of the one the machine is anchored to. The machine will then have to be moved to another anchoring place, and so on until the field is cleared. The last stump left must be grubbed out. It will be necessary to remember that the power of this lever is very great, and stump pulling requires stout implements and chains. A breakage may not only cause delay, but a blow from a snapping chain may very easily be fatal; it is therefore absolutely necessary for safety that the chains be made of the best iron, with the best workmanship, and strong enough to hold against all the resistance they may meet. The lever should be strengthened with iron plates in those parts where the holes are bored for the clevis bolts.

The Mother's Milk for Calves.

I visited one of my neighbors yesterday, who has a reputation for raising good stock. He showed me a Jersey heifer, as he called her, one year old. The sire was Joe Hooker, No. 465, Am. J. C. C. Register, a fawn-and-white bull of high reputation. The dam was a large fawn-and-white cow, represented as purely bred, but without recorded pedigree. She looks enough like Sharpless Duchess, 101, Am. J. C. C. R., to be her sister. She had been bought by a former owner for $450, on account of her great excellence as a milker. This yearling heifer looked so much like the Guernsey stock, that good judges would call her a thorough-bred Guernsey." She was quite as large as common two-year-old Jerseys. But it was not good blood alone that had made this well-developed heifer. She had run with the mother all last season and was now in flush pasture. This told the story. A full year has been gained by good feeding, and she will be a well-grown cow with a calf at two years old. I have been trying this experiment on my farm the past two years, and am perfectly satisfied there is no substitute for the mother's milk in raising good milking stock. Milk is the natural food of calves, and on the plains of Texas and Kansas, where grass and milk are plenty, they suck the cows until they dry up. Milk is costly on Northern farms, especially Jersey milk, which is nearly half cream. It seems almost too good to give to a calf, however handsome. But the Jersey heifer, if a Herd-Book animal, and well raised, is also a very costly animal. With the mother's milk invested in the calf, she is likely to be graceful, and to gain some of the fancy points which command high prices. It is better to raise heifers worth $300 at two years old on the mother's milk than to raise them worth $100 on hay-tea and skim-milk. No more slops and pot-bellied yearlings for me.

CONNECTICUT.

Grain-Bins and Corn-Cribs.

Much inconvenience in handling grain is occasioned by a faulty construction of the bins in the granaries. Generally the grain has to be shoveled out over the top of the bin into a bag,

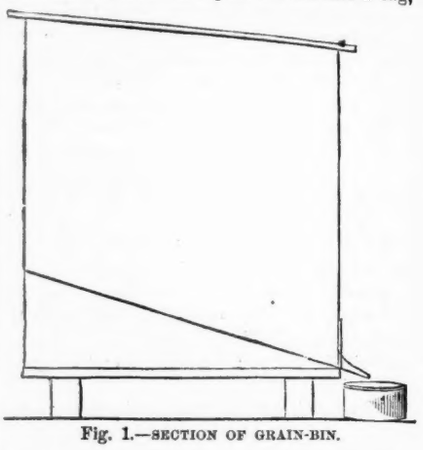


Fig. 1.—SECTION OF GRAIN-BIN.

requiring two persons to perform the work. We recommend an improvement illustrated in figure 1. The bin is raised on short posts a few inches from the floor. This prevents the tapping of the grain by rats and mice. These often cause great loss by gnawing holes through the corner of the bin, through which much grain escapes. A false bottom, with sufficient elevation to cause the grain to flow towards the front, is arranged, and a slide-door at the bottom permits it to run into a half-bushel standing on the floor; from whence it may be transferred to a bag, if desired. One man can now perform the job alone. If the door be placed at the center of the bin, the bottom may be arranged so that every grain will run out as it is wanted. To effect this, the bottom must slope every way towards the outlet. Many country millers who handle a good deal of grain might profitably have their bins made in this manner.

Corn-cribs might be improved in a double way

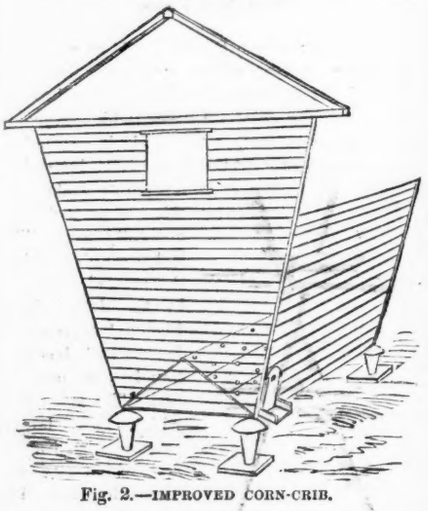


Fig. 2.—IMPROVED CORN-CRIB.

by a somewhat similar arrangement of the floor. Generally, if any mold occurs in a crib, it is on the floor, as here is found the first corn put in, which is generally dampest, and here the least ventilation takes place. A floor raised "roof-shaped" (fig. 2), and holes bored in it for ventilation, would effectually prevent dampness or mold in that part of the crib; and if slide-doors are put here and there at the bottom, at con-

venient places, the crib may be emptied, or nearly so, without taking a shovel or scoop into it. We have found that rats may be excluded from the crib by a peculiar form of post, turned smoothly in the lathe. The shape is somewhat like a mushroom, the stalk smallest at the bottom. The blocks (sunk in the ground) are of wood, with holes made to receive the posts, which enter four or five inches and fit tightly. This causes the crib to stand firmly. When the posts are made smooth with sand-paper, no rats or mice will mount them.

LARGE VS. SMALL PIGS.—Mr. Hinman, of Connecticut, writes: "Pigs with us this year sell at about six dollars each at weaning time. Last year my neighbor, who keeps a large breed, had pigs which weighed at nine months old, 424, 431, and 450 lbs., respectively, while mine at the same age weighed only about half as much, and were very nice pork indeed. I think I fattened two pigs as cheaply as my neighbor fattened one, but is it your opinion that I did so enough cheaper to make the difference in the first cost, my two pigs being worth twelve dollars, and his one only six dollars?"—If the two pigs ate as much as the one, and sell for no more per lb., evidently the man who bought the small pigs loses three dollars per head. In other words, he pays three dollars per head too much for them. In such circumstances the feeder had better buy the large breed. But how is it, with the man who *raises* the pigs to sell? *If* the large breed, as our correspondent asserts, eat twice as much as the small breed, it is evident that two sows of the latter could be kept as cheaply as one of the former, and consequently the little pigs could be sold at half-price. If they bring as much as the others when ready to wean, the small breed is the most profitable to the farmer who raises them for this purpose. If he both raises and *fattens* them, there would be, according to the statement of our correspondent, no difference. One breed would be as profitable as the other.

Pumps for Liquid Manure.

A reader of the *American Agriculturist* in Kossuth, Ind., asks information about square or box pumps for liquid manure—one that he can construct for himself. We give an engraving of a pump (fig. 1) that has worked well in our hands, and one that can be readily made with such tools as a saw, hammer, and nails. The size may be made to suit any circumstances. The box must be fitted tightly together, so that it does not leak. The valves (fig. 2) are of wood, covered with sole-leather, which projects a quarter of an inch over the edge, so as to insure a tight fit. They are hinged with a pair of common butt hinges to the pump rod, so that they will open the full width, to permit any solid matter that may be in the manure to pass up without choking. The pump rod is a strip three or four inches wide; at the bottom of it is fastened a hemispherical piece of wood, which supports the valves, when working.

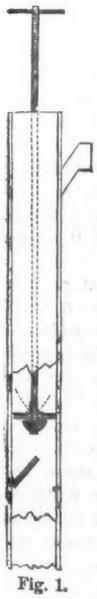


Fig. 1.

Fig. 2.

We also reproduce an engraving (fig. 3) of another kind of valve, which was figured in these columns several years ago. A valve of this kind may be used in any common box pump. It will work where much coarse matter is mixed in the liquid manure, as the sides of the valve are capable of being pressed closely together, affording room for the solid matter to pass beyond them, when, on being drawn up, they open again, and every thing is lifted and discharged. When it is necessary to use a long pump, as where the manure cistern is deep, and a pump of 12 feet or more is needed, we would put a stationary valve at a convenient distance, say four or five feet from the bottom. The pump rod need not then be so long, and the pump will work more easily. A discharge spout should be made in the pump, which renders the work more cleanly than when the manure is permitted to flow over the top, as is sometimes done, causing splashing that might be avoided.

Fig. 3.

Early Lambs for Market.

Where it is possible to get lambs to market early in the spring, a very profitable business may be made of raising them. Common native ewes put to a South-Down buck in August, will bring a lamb in the month of January that will fatten more readily (though it may not gain so great a size) than the Cotswold cross. A lamb dropped during the middle of winter sometimes requires attention during the first few hours of its existence to prevent its becoming chilled, after which it will need no extra care, and will thrive apace, if the ewe is properly fed. As the sale of fat lambs in May at 25 cents per pound is a profitable operation, it is worth while to give attention to producing them. Allow no old ewes to be coupled, as they can not raise a lamb so well as a young and hearty one. Select the best of the young ewes, and commence feeding them something extra from the day the buck is turned in with them. A little wheat bran is good, changed occasionally for a handful of rye, oats, or buckwheat. See that these ewes don't want water, and a trough containing a quart of salt with the fourth of a pint of sulphur mixed in, should be placed where they can get to it at any time. With good care most of the ewes will produce twin lambs. A good, full bite of aftermath, if it can be had, should be given; if not, rather than injure the meadows, turnips may be pulled, or a few green corn-stalks cut for them; and when these fail, clover hay should be supplied freely. Excellent care from the earliest periods of gestation will make the lamb, more than any after care could do, with neglect now. The sheep will also keep in good condition, and when the lamb is taken away in May or June, will fatten quickly, if desired, on the early grass, and can be turned off profitably as mutton. A small but well-selected flock of sheep may thus be made the most profitable investment of the farm, but it is undoubtedly true that the flock should be no larger than can be properly handled and cared for.

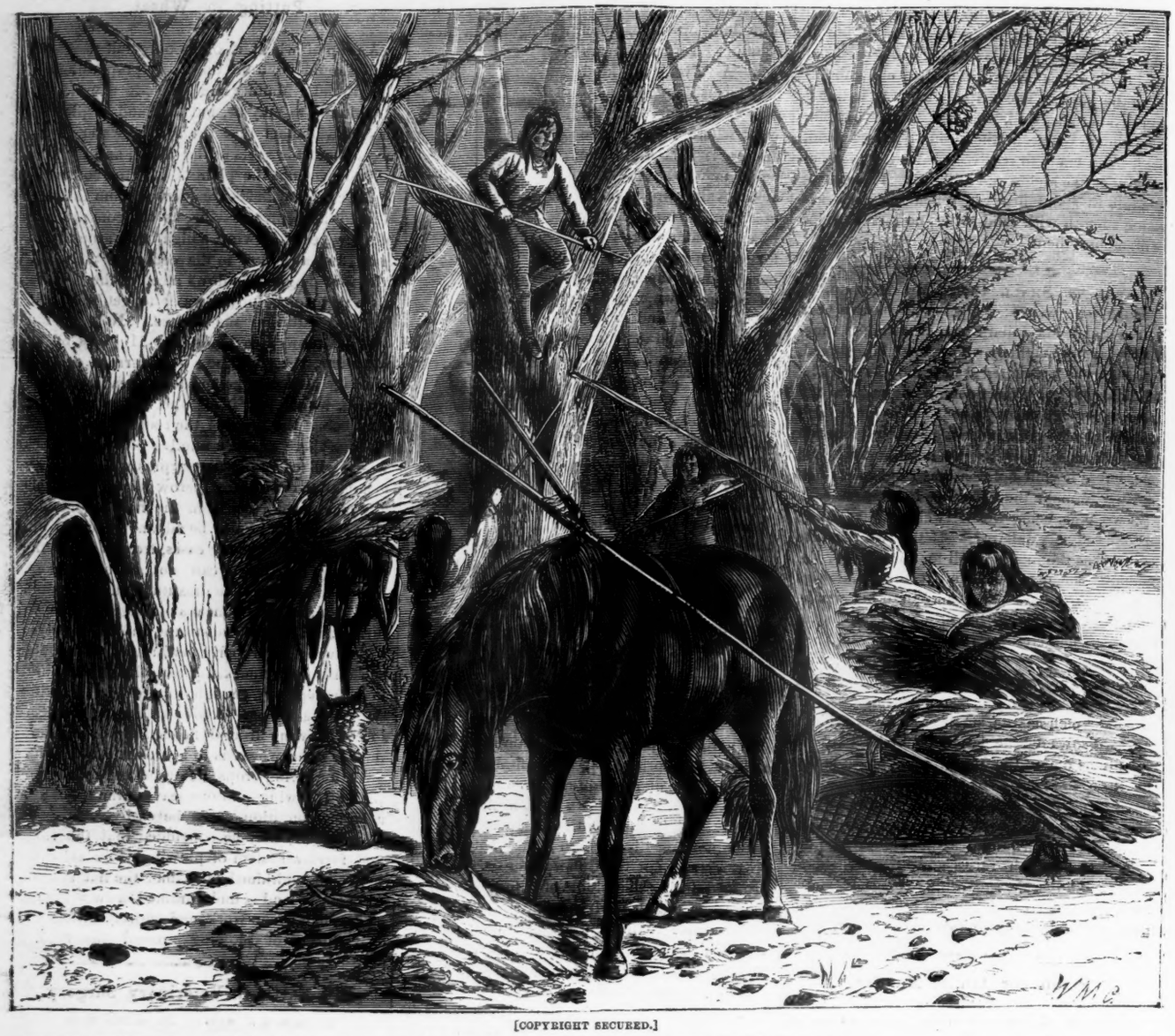
Putting in Wheat.

A crop of wheat is often only half as large as it should be, from the faulty preparation of the ground. Manure and lime are supplied as abundantly as may be, but the land is plowed in such a manner that the surface water is always about the roots of the wheat, and the first frost heaves out the plants. It is too commonly the case that fields are plowed from the outside to the center, leaving, as the consequence of a few years' plowing, a high bank around the fence, and a hollow in the center of the field, with four diagonal hollows meeting there. This gives no chance for the water to get away; it lies and saturates the surface. Now let the field be plowed in lands, say 11 paces or 22 feet wide; there will be a dead-furrow, causing drainage at least 6 inches deep at each of these spaces, which will bring the surface-water at least below the level of the roots of the wheat. Besides, there will be a number of watercourses which will carry off the surplus water, and by means of a connecting furrow it may be generally conducted away from the field altogether. However much it may be advantageous to underdrain land, in many cases, from want of the necessary capital, it can not be undertaken. Then the best possible substitute must be found. Surface-draining by means of ridges and open furrows is the best substitute, and if this style of plowing is properly performed, where the subsoil is not remarkably retentive, the ground may be kept dry enough to prevent throwing out during winter. Above all things, the fashion of plowing around fields should be abandoned when wheat is to be sown. It may answer for spring crops, but a better and neater plan of plowing, and one leaving the ground in a better condition, could be easily substituted. Generally, it may be concluded that the ridge and furrow system of plowing is in all cases better on undrained land than the flat system. Where the land is underdrained, a swivel plow makes handsome work, and entirely avoids the bad effects of plowing around the field.

Dry Earth in Veterinary Surgery

BY GEORGE E. WARING, JR., OGDEN FARM.

Perhaps I should say "Cow-Doctoring," for such a thing as Veterinary Surgery is unknown on this island of Rhode Island. I found, one afternoon late in May, that two of my men had been called to attend a sick cow belonging to a neighbor who was then absent. The animal had recently calved; had been allowed to stand on a sand floor in which her hind feet had worn a deep depression; and in "cleansing," the effort at expulsion, added to the low position of the hind-quarters, had forced out the entire uterus, and in frequent lying down and rising she had bruised and soiled the parts so that the whole was covered with sand, manure, and blood. When I arrived on the ground the parts had been only imperfectly washed, and had been returned by main force—so far as I could learn, with more clotted blood and filth than would have been left on them by a more skillful practitioner. The cow was in an extreme state of exhaustion, and we none of us thought it possible that she could live. The usual remedies were resorted to, and every thing that the very limited knowledge of the neighborhood could suggest, was done to make the animal more comfortable—all to no purpose. She grew worse from day to day, and finally her



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INDIANS GATHERING COTTON-WOOD BARK.—DRAWN BY W. M. CARY.—*Engraved for the American Agriculturist.*

owner told me, "That cow is going to die—the most offensive mortification has set in, and I see no way on earth to help her. It's a pity; she is a very good animal"—and he evidently felt (in dollars and cents) the full weight of his misfortune. I told him, if he considered her already a lost cow, I would suggest another remedy that *might* succeed, but it was one which, as it was only an experiment, I would not advise in any but a desperate case. He said the cow was worth her hide, and no more, and he was ready to try any thing. I knew my prescription would lessen the poor animal's pain, and would remove the offensiveness of her mortifying wound, and so I gave it. "Take some of the finest earth of your garden (clay loam); make it *air*-dry; sift it finely, so as to get out all small stones, and fibres of roots; and fill the womb with it. When some of this is expelled, put in a fresh supply, so as to keep as much dry earth—or pure earth—in constant contact with the wounded parts, as you can. Abandon every other form of treatment, and give the earth a fair chance." He promised to follow the directions, and drove on. From that time until the middle of July, when I met him again on the road, I thought nothing of his cow, and probably should never have thought of her again. He accosted me with: "Well, that cow got well after all. I did exactly what you told me to, and it stopped the mortification right off. She is as well as ever now."

This is the whole story; but it is a story full of suggestiveness for all owners of live-stock. Fortunately such cases as this are of rare occurrence, but there are all manner of wounds and abscesses and ulcers—which give infinite trouble, and which, under ordinary treatment, give much pain to the animal—that may be successfully treated with dressings of dry, *clayey* earth, and with immediate relief from pain. This is a remedy which all who can procure suitable earth can readily use. The only caution necessary is to avoid making the application to any sore that it is best to keep open.

Gathering Cotton-wood Bark for Forage.

The inner bark of some trees is very rich in mucilaginous matter, sometimes in sufficient quantities to be available as an article of food. This is notably the case in our Slippery Elm, the inner bark of which readily yields to water a rich mucilage, and the flour made from it is used as a nutriment for invalids. The barks of some poplars and willows are nutritious, and in times of scarcity are used by the people of Northern Europe either as a substitute for grain, or to mix with their scanty supply of flour. Deer, rabbits, and other animals, both wild and domestic, in the absence of other food, frequently sustain themselves by eating the bark of trees, often to the annoyance of the cultivator. Some of the Indian tribes of the West rely upon the bark of the Cotton-wood (*Populus monilifera* and other species) as a forage for their hardy ponies, and gather stores of it for use in winter when other food is not to be obtained. The engraving is from a drawing by Mr. Cary, and represents a party of Indians laying in their winter stock of cotton-wood bark, and shows their rude means of transportation. The writer has, on more than one occasion, found the cotton-wood the only available forage for his animals. On reaching camp, trees were felled, and the animals allowed to browse upon the small branches and twigs, which were eaten with great avidity by the half-starved horses and mules.

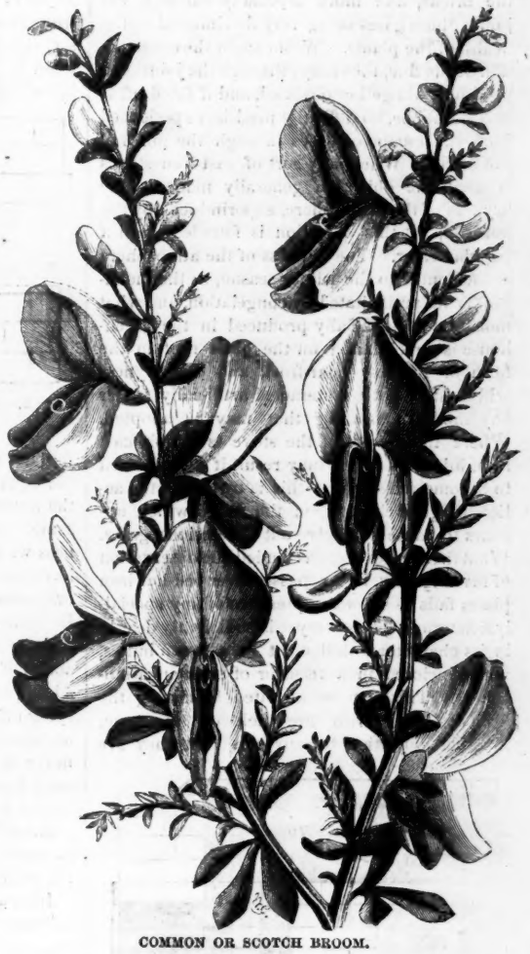
The Southern Bush-Honeysuckle.

In the rocky woods at the North, there grows a small Bush-Honeysuckle, a small and not very showy species, with honey-yellow flowers, the *Diervilla trifida*. This species was called *Diervilla lutea* by some of the older botanists, and seeing that name on a catalogue we ordered the plant. When the shrub came in flower, we found to our gratification that instead of the plant of the Northern States we had one peculiar to the Southern Alleghanies, the *Diervilla sessilifolia*, which, besides being rare, is a much finer plant than the other. We give an engraving of a flower cluster of the natural size. Though this Southern Bush-Honeysuckle can not rank as a very showy shrub, it is an exceedingly neat one, and the modest color of its abundant flowers makes it an acceptable addition to a collection. The showy and very popular Wiegelas are now placed in the genus *Diervilla*, but they differ from our species in the size, shape, and color of the flowers.

SOUTHERN BUSH HONEYSUCKLE.

The Common or Scotch Broom.

The engraving shows plainly enough that the Broom belongs to the Pea or Pulse family. It is a shrub usually growing from three to six feet or more in hight, and is found throughout Europe. In the south of Europe it becomes a small tree, 20 or 30 feet high. Its tough and slender green branches are angled, and bear small leaves, the lower ones of three, and the upper ones of a single leaflet. The flowers are borne in the axils of the leaves, are of a golden-yellow color, showy and fragrant. When the flower first opens, the style and stamens are confined in the keel, but when touched or disturbed by an insect, they suddenly spring upward. As an ornamental shrub the Broom is not without beauty; the leaves are quite inconspicuous, but the long stems are of a dark green, and produce a pleasing variety when mingled with other shrubbery. The name indicates one of its most common uses, that of making brooms for sweeping, and it appears to have been used for that purpose in ancient times as well as in modern ones. In the domestic economy of some parts of Europe, the Broom is used for thatching, filling in hurdles for sheep and cattle shelters, and for fuel. Sheep are said to eat it readily at all seasons, and there have been times in Scotland, when the ground was long covered with snow, that it has furnished the only available food for the flocks. The branches, when rotted and beaten, afford a fiber from which a good coarse cloth may be made, and in those countries where it attains a large size, the wood is valued for ornamental work. Formerly the plant was in repute as a diuretic and purgative. It is most readily propagated by seeds which are produced abundantly. The botanical name is *Cytisus scoparius*, though some botanists put it in a separate genus, *Sarothamnus*.



COMMON OR SCOTCH BROOM.

How to Build a Cheap Greenhouse.

BY JAMES HOGG.

[In the article upon building a greenhouse, given last month, the portion descriptive of the internal arrangement was by accident omitted, and is given here.—ED.]

INTERIOR OF HOUSE.—Inside, the front platform for the plants is carried along the two sides and the end. It is 3 feet wide and 12 inches below the upper and inner edge of the plate strip. The walks are 3 feet wide, although they may be reduced to 2 feet 9 inches, and the extra 3 inches added to the center platform; the lower half of this platform is of the same hight as the front platform, and 18 inches wide; the center shelf is raised 10 inches, and is 3 feet wide.

All the lower sashes are screwed fast to the rafters, as is also every alternate upper sash, the intermediate ones sliding down to afford ventilation. A cap 3 inches wide is fastened to each side rail of the upper sashes that are fastened down; these cap pieces cover the side rails of the sliding sashes $1^1/_2$ inches, and prevent the wind from lifting them and blowing them off. For the purposes of ventilation it is not well to have the lower sashes loose, as the cold air admitted directly over the plants very frequently does injury to them, especially if there is the least neglect in watering them. All the ventilation required in a house of this size can be had by lowering the upper sashes and opening the door at the end of the house.

The sliding sashes should be hung with greenhouse sash pulleys, which are made in such a way that the cord can not slip off the sheave and jam between it and the jaws of the pulley. They can be had at any of the larger city hardware stores. The lower end of the sash-cord is fastened to belaying pins, or some similar contrivance, attached to the rafter over the front platform. The joints of the rafters should all be put together with thick white lead and oil, and care should be had that the joints are mitered true and square.

HEATING.—A really cheap method of heating greenhouses, that is, one relatively as cheap as the structure itself can be made, has not yet been devised, although it has occupied the minds of garden architects for many years. The objects to be attained are: first, cheap materials; secondly, quick diffusion of the heat throughout the house; and thirdly, the retention of heat in the apparatus, to be given out in the latter part of the night, when it is not convenient for one to attend to the firing. The cheapest materials are brick, built into the form of a flue; for giving out heat quickly, sheet-iron pipe, like ordinary stove-pipe, is the best; and for retaining heat nothing yet devised is

better than a good hot-water apparatus. The objection ordinarily urged against the brick flues, is the escape of the gases evolved by the combustion of the fuel through the pores of the bricks, and more especially through the joints, these gases being very detrimental to the health of the plants. With care in the construction of the flue, the escape through the joints can be almost altogether obviated, and if the draft is as it should be, no difficulty need be experienced from the escape of gases through the pores of the bricks. When any sort of cast-iron stoves is used, the objection generally made is the dryness of the atmosphere, superinduced by the hot iron, but this objection is founded upon a popular error. The dryness of the atmosphere is incidental to the winter season, as the moisture is all precipitated by congelation, and what moisture is artificially produced in the greenhouse is precipitated on the glass roof in the form of rime or hoar-frost, and this dryness will exist, if not counteracted artificially, under any mode of heating that may be adopted. Where the fire-pot of the stove is simply cast iron, injurious effects may result if it is allowed to become red-hot, but this is owing to the action of great heat upon the metal which appears to cause it to give out deleterious gases. What these gases are, has eluded the observation of investigators, as air passed over red-hot iron plates fails to show the presence of any specially deleterious gases, but yet is sufficiently deadly in its character to kill a cat in a few minutes, when inclosed in a receiver of such an atmosphere. This can be obviated by having the fire-pot lined with fire-brick or soapstone. Another objection to stoves is that they are

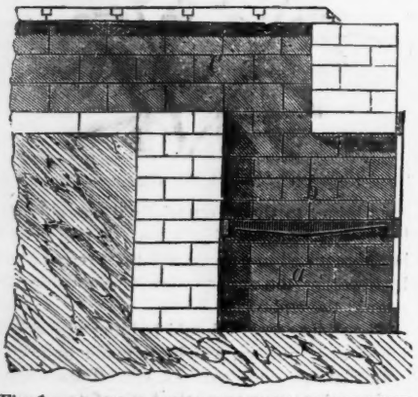


Fig. 1.—VERTICAL SECTION OF FURNACE AND FLUE.

either too hot or too cold, not giving out the heat regularly; but the invention of base-burning stoves has done away with this, as they are so constructed as to keep up an equable temperature when due attention is paid to the regulation and adjustment of the dampers.

The pipes, however, rapidly rust away, unless they are made of galvanized iron, especially those carried under the shelving of the front platform. The use of sheet-iron pipes has one great advantage in the rapidity with which they respond to the action of the fire and heat the house quickly; a matter of great importance in our climate, as it frequently happens that after a warm rainy day and evening in winter, when scarcely any fire is needed, the weather will suddenly clear up with high, cold winds from the westward, and before the fire can be got properly under way the temperature of the house will be so greatly reduced as to almost baffle all attempts to get it up to the proper point again before sunrise.

It is often urged in favor of the use of hot-water pipes that they give out a moist heat. A moment's consideration will show the fallacy of this notion. The boilers are air and water tight, as are also the iron pipes themselves, and no vapor or moisture can escape from them except from the receiver, an iron column of perhaps six, eight, or ten inches in diameter, the evaporation from which would not exceed two inches in twenty-four hours. The great advantages in

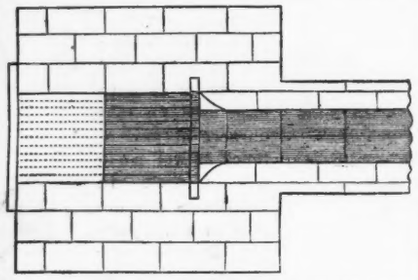


Fig. 2.—HORIZONTAL SECTION OF FURNACE AND FLUE.

the use of a hot-water heating apparatus are the equable distribution of the heat throughout the house, making the temperature almost the same at one end as at the other, and the slowness with which the water gives out the heat it has taken up from the fire, thus insuring an evenness of temperature during the whole night. Its disadvantages are its cost in the first instance, and the slowness with which it responds to the action of the fire. The latter can be obviated by adding to it sheet-iron pipes or flues for the carrying off the gases of combustion from the fire, an arrangement which in our climate should never be neglected, as a great saving of fuel results from it. This, however, is seldom done, as the arrangement and setting up of such apparatus is almost always intrusted to architects or mechanics who generally know little about the cultivation of plants.

In heating by brick flues the main point to be attended to is the construction of the furnace, which, for a greenhouse such as is described in our last number, should be 12 inches wide, 12 inches high, and two feet deep. These dimensions are somewhat larger than those usually employed, but we prefer, from long experience, to have plenty of room in the furnace, as the combustion of the fuel is more perfect, and when required is more rapid, as it gives an opportunity to use a thin, quick fire when necessity calls for it. The ash-pit should be of the same hight, if practicable, but it may be reduced to eight or nine inches in hight, if necessary. Both the ash-pit and furnace should be provided with cast-iron doors, both hung on one cast-iron frame, if they can be had made in this way; otherwise each door may have its own separate frame. The frame should be anchored into the brick-work. The furnace bars should be 24 inches long, one inch thick, and one inch wide at each end, three eighths of an inch thick in the body, and two inches deep in the center. They rest at each end on a cast-iron bearer, 15 inches long, and an inch square.

The furnace should be lined with fire brick laid flat, and backed up on the two sides and back and on top with eight or twelve inches of common brick. The top of the furnace should be laid with a three-inch fire tile, 12×15 inches. The flue starts from the top of the furnace; it is laid under the front shelf, on a foundation of brick, one brick thick, on the flat, and 14 or 15 inches wide; the sides are built up of three bricks on edge, the clear space between them being 7 inches, making the area 7×12, if tiles are used for the covering; but, if bricks are used for covering, the width must be reduced one or two inches. It is common to make the tiles with a rabbet on each end and to lay them with the rabbets overlapping each other, but as it is almost impossible to make them smoke-tight when thus laid, we always turn each alternate tile on its back and butt the edges of the rabbets together, which thus makes a groove or gutter half an inch deep and an inch wide, to be filled with mortar, and it is then perfectly tight.

In laying the tiles or bricks as covering, we do not generally lay them so as to cover the full width of the sides, but regulate the width of the flue in such a way as to have the covering (either bricks or tiles) short of the outside width of the flue, two or three inches, and lay the mortar on the edges in such a way as to make the flue appear as though its upper edges were chamfered. If the flue has to be carried under a doorway, it will be necessary to sink the furnace so far as to keep the bottom of the flue at its lowest part level with the top of the furnace; if it is carried lower than this, it will not draw. The bricks both for the furnace and flue should be damp when laid, and the mortar rather thin. Great care must be taken to lay all solid; every joint should be filled when laid, and so as not to require any "pointing up" afterwards, neither should the flue be "parged" or plastered on the inside, as it soon drops off

Fig. 3.—GRATE-BAR—SIDE VIEW.

and chokes the passage. If the flue is not carried into one of the chimneys of the house, it should be taken through the side of the green-

Fig. 4.—GRATE-BAR—TOP VIEW.

house and a separate chimney made for it. If there should be any danger of a bad draft when the chimney is carried up near the dwelling, the flue may be returned alongside of itself to a properly safe point, and then carried out.

If the greenhouse is to be heated by a base-burning stove, the stove-pipes should be five or six inches in diameter and made of galvanized iron. They may be suspended under the front shelves; but neither they nor the brick flue should come within 8 or 9 inches of any woodwork, for fear of fire.

A hot-water apparatus can only be set up by mechanics who are fully acquainted with the principles upon which it operates, and who have the mechanical skill necessary to put it together. There are several kinds of boilers in use, and if any of our readers should desire to heat their greenhouse by this method, we advise them to apply to some one of those who make it a specialty; their advertisements are to be found in almost any horticultural journal. For an ordinary greenhouse, especially if of small size, a brick flue or base-burning stove will answer every purpose, at less than one half what a hot-water apparatus would cost. Under any arrangement that may be adopted the fire end of the mode employed should be at the coldest side of the house when it can conveniently be placed there.

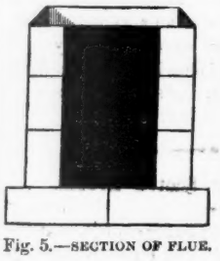


Fig. 5.—SECTION OF FLUE.

The Wakefield Cabbage — How to Select for Seed.

BY PETER HENDERSON.

After we had been growing the Early Wakefield cabbage in Jersey for a few years after its introduction from England, we found that it broke into over a dozen sub-varieties, of varying size of leaf and shape of head, and, worse than all, of varying earliness. No matter how carefully we selected the heads that we used for seed, the same difficulty occurred. A few miles inland, somewhere near the Orange Mountain, we found that an old German was always ahead of us in having the first Wakefields in New York, and these too of a uniformity in shape that none of us nearer the city could produce. All inducements to get him to sell seed were disregarded, and year after year he kept the lead. Several plans were laid to circumvent him, such as ordering a hundred of his cabbages with *roots* on. But old Carl was not to be caught so; he filled the order to the letter, making the buyer pay roundly for the roots, but took the liberty of first dipping them in boiling water! But one day he invited a friend and countryman to see his wonderful cabbages as they grew. This was a fatal day for Carl's monopoly, for his friend had his eyes about him, and observed that several of the stumps from which the earliest heads had been cut were marked with a stake, as were a few of the choicest shape, as yet uncut. The secret was out. Carl's success had been gained by persistently year after year selecting the earliest and finest heads; taking up the stumps from which they where cut, he planted them carefully, and taking the young shoots produced from the stumps, he treated them exactly as we treat cuttings of a flower, that is, by planting the slip in the soil, watering it freely, and shading it until it rooted. After these cuttings or shoots of the cabbage were rooted, they were planted in the usual cabbage-frame, covered with glass in winter, set out in spring, and next July ripened seed. This process is too expensive and slow to follow for raising cabbage seed in quantity, but it is now used by careful growers to produce pure and improved stock from which to raise seed.

Notes from the Pines.

SWEET CORN.—Much talk was made last spring about "Moore's Extra Early Concord." It came from Massachusetts, and that was in its favor, for Massachusetts is next door to Rhode Island, where sweet corn was invented. I can recollect when Rhode Island people used to send baskets of sweet corn, by stage—that was before railroads—to their friends in Boston who, in those days, knew not sweet corn. In adjoining rows, and upon the same day, I planted Crosby's Early, Moore's Concord, and a variety grown extensively about here known as Tom Thumb, Van Riper's, Cadmus', and by other local names. The varieties had the same care, and the last-named was fit for the table full *two weeks* before the others, Moore's leading Crosby's by a few days. But what stuff this Moore's proved! I never saw such a mixed lot, and in size and color there was the greatest lack of uniformity. Some stalks were three feet high and others ten. Then as to smut—I never saw any thing to equal it. In a row 150 feet in length I did not get three dozen ears, and of these not more than a dozen were of decent size, the rest being nubbins two and three inches long. I know that this variety does finely around Boston, but upon my light soil it has been the most provoking of failures. Still I shall try it again, as the unusually wet season may have had something to do with the untoward results. It is only by recording failures as well as successes that we can arrive at the value of varieties.

SUBTROPICAL.—I made an odd bed, which thus far is very pleasing. The bed is a long oval in the lawn, and I put out two plants of Ricinus (Castor Oil) and set around them a margin of *Colocasia* (*Coladium*) *esculenta*. The luxuriance of the foliage of these produces a striking effect. Another thing that has given me much satisfaction is a clump of

ARUNDO DONAX.—This is a native of our Southern States, but is quite hardy here. My plant of it is now in its second year, and its stems form an immense clump ten or twelve feet high, of a bluish-green color. The leaves have a graceful curve, and are moved by every breeze. It is the "reed shaken in the wind" of Scripture, and if it were better known it would be very popular. It is not as graceful as the Pampas grass or Erianthus Ravennæ, but it requires no petting nor protection, and has a sturdy elegance of its own that is pleasing to look upon. Its variegated form is a poor grower in comparison, but it is a showy plant, and worth the trouble of protecting it in winter.

THE SORREL TREE. — This was formerly called Andromeda, but is now *Oxydendrum arboreum*. The leaves are sour to the taste, hence the common name. It grows in its native localities, the Southern and Middle States, to the hight of 40 or 50 feet. My specimen is about 15 feet high, and has been clothed for some weeks from "top to toe" with its long, one-sided clusters of white flowers, which in shape remind one of the Lily of the Valley. If you wish to plant a good thing and something out of the usual run of trees, try the Sorrel Tree. Near it is a specimen of another valuable tree,

THE KŒLREUTERIA PARICULATA, than which nothing can be neater in its dark-green cut foliage. Its clusters of yellow blossoms are showy, and its bladdery pods still more so. The tree is remarkably clean, not liable to be troubled by insects, a good grower, and in all respects desirable. Yet nurserymen tell me that there is no sale for this and many other choice species. People confine their orders to maples, elms, and a half-dozen other well-known things, while really choice varieties remain as dead stock upon their hands.

Fall Planting of Hardy Plants.

BY PETER HENDERSON.

All hardy plants, that start early in spring, should be set out in autumn. The best time in this latitude is from October 15th to November 15th; if later than this, they should be covered with hay, straw, or some such material, to keep them from being severely frozen. The reason why such plants as Rhubarb and Asparagus do better by being planted in fall, rather than in spring, will be apparent when we consider their nature. Young or old plants of either Asparagus or Rhubarb, just as soon as the frost is out of the ground in spring, begin to develop the buds which form the stalks. Simultaneously with this starting of the buds, there is a development of rootlets. Now, when we lift these plants to transplant in spring, these minute fibers are destroyed—not only by breaking off, when dug up, but by exposure to the air. This does not seem materially to injure these roots, for either will grow and do well if the transplanting is delayed even late into the spring months. But what we contend for is, that they will do better, if planted so early in the fall—say during October—that these rootlets may be emitted, and be ready, if thus left undisturbed, to impart vigor to the plant in spring. I am convinced that, particularly in light, dry soils, Rhubarb or Asparagus roots planted in October will give (conditions of soil and manure being equal) a much better growth than when set in spring. Last fall I put out in October, for my own use, a dozen roots of Rhubarb. Not having enough plants then to complete the row, I delayed getting additional roots until April. The result was, that we were pulling the stalks from those planted in October before those set out in April were showing signs of starting. This fall planting is equally advantageous with hardy bulbs. Our stock of Lilies is usually planted in October, and if by any chance some are left over until spring, the growth is never so vigorous, and the later the operation of planting is delayed, the weaker the growth. This many of your lady readers, no doubt, have experienced with their Hyacinths and Tulips. When planted early in fall, they form roots before cold weather sets in, and are ready to start early in the spring; but if the planting has been delayed until December, it is then too cold for roots to form, and the consequence is, a feeble flower in spring; or, worse yet, if Hyacinths, Tulips, or Crocuses are not planted until spring, the *top starts before the roots*, and the result is complete disappointment, and if the bulbs flower at all, they are weak and feeble. This may be still further illustrated by plants of an entirely different nature, in any section of the country where the thermometer does not fall lower than 15 or 20 degrees below the freezing point. Cabbages or lettuce plants set out in October, will come to maturity 10 or 12 days quicker than if planted in February or March. In many parts of the Southern States this fall planting of cabbages, or sowing or planting of onions, for market purposes, may be followed very profitably. No doubt it is done in some places, but I do not believe it is generally practiced. In such localities the advantage of planting Rhubarb or Asparagus in fall would be even greater than in colder districts, for if delayed until spring, hot weather rapidly sets in, and, as in the case of Hyacinths or Tulips, above referred to, the tops start before the roots, and the growth for some time is feeble.

Our Native Loosestrifes.

There are many native plants which, while they possess neither a striking appearance nor any marked qualities, are yet of such frequent occurrence that most persons desire to know what they are and something about them. Our native Loosestrifes, though not of any great beauty, are of such frequent occurrence that specimens are often sent to us for a name, and we give engravings of two of our common species. The well-known Moneywort of the gardens, the long, trailing stems of which make it such a favorite plant for hanging baskets, is a European species of Loosestrife, which has become naturalized in some places. The Loosestrifes belong to the genus *Lysimachia*, the name supposed to be from Greek words meaning *a release from strife;* the common name in this instance being nearly a translation

of the botanical one. Pliny states that in his time it was a popular notion that if the plant be laid upon a yoke of oxen when they are quarreling, it will quiet them. It is not necessary to say any more about the botanical relations of these plants, than that they belong to the large Primrose family (*Primulaceæ*), and have the general characters of that order. They are leafy-stemmed, with opposite or whorled leaves, and our species all have yellow flowers. The specimen at the right hand in the engraving is the Four-leaved Loosestrife, *Lysimachia quadrifolia*, and is noticeable for its symmetrical arrangement, the leaves being in whorls of four (sometimes more or less), with the flowers upon long and very slender stalks from the axils of the leaves. The other species is the Upright Loosestrife, *L. stricta*, and has its flowers arranged in a long pyramidal raceme. This is the showiest of our species, of which there are five others, to be found in damp thickets.

UPRIGHT AND FOUR-LEAVED LOOSESTRIFE.

The Trilliums, or Wake-Robins.

In looking through the volumes of the past six or eight years, we find that we have figured a large number of native shrubs and herbaceous plants, and that together they make a collection not to be rivaled by any exotics. We have endeavored to point out such natives as were worthy of cultivation, and to show lovers of flowers whose means were limited that they might surround themselves with beautiful objects without other expense than the trouble of removing the plants from their native localities to the garden border. There are some exceptions to the statement, but we may say as a general thing that wild plants improve when transferred to the garden. The chief reason of this is that the plant has undisputed possession of a sufficient amount of soil to allow it to develop to its fullest extent, and is not, as in its wild locality, obliged to struggle with a host of aggressive neighbors. Each new work published abroad contains an increased number of our native plants, and we find in English catalogues very many more American plants than we find in those of our own florists and nurserymen. Among the beautiful native plants that are eminently worthy of a place in our borders, are the Trilliums, or Wake-Robins. We have eight species, all of which are interesting, and some of them very showy. They have a tuber-like root-stock, from which arises a stem bearing at its summit a whorl of three ample leaves, and a single terminal flower with its parts in threes. In the large White Wake-Robin (*Trillium grandiflorum*) the flower is from three to five inches across; white when it first opens, and when older changing to rose color. This is our showiest species, and a bed of it is truly beautiful. The Purple Wake-Robin, sometimes called Birthroot (*Trillium erectum*), is the species we have figured, and gives an idea of the general aspect of the others. The petals in this are dark purple or maroon color. These and other species are to be found in rich damp woods in the North and West. When transferred to the garden they require a year or two to become established, and then they will each spring give an abundance of bloom, and are almost unrivaled in beauty by any flowers of the season.

THE PURPLE WAKE-ROBIN, OR TRILLIUM.

LETTUCE FOR NEXT SPRING.—Those who have not frames for wintering their lettuce can get an early start by sowing about the middle of this month the seed of some hardy variety. The Brown Dutch and the Green Winter are among the hardiest sorts. Sow where water will not stand, and when cold weather comes give a covering of leaves and brush. Around New York the plants winter perfectly well, and as soon as a well-enriched spot of ground can be got ready in spring the lettuce may be transplanted and give a very early crop.

PLANTS FOR WINTER.—It is a very common thing to take up and pot, about the time frost comes, those Verbenas, Geraniums, Heliotropes, and other plants that have been in the borders all summer. As a general thing this is labor lost. The plants have grown quite out of shape, and they are very long in recovering from the shock caused by removal, if they do so at all. It is as a general thing much better to strike cuttings and get a stock of young plants, and the matter can not be attended to too soon. Verbenas, Geraniums, and the like root readily if they are put in sandy soil in a shady place, or they may be artificially shaded. Heliotropes succeed better if potted than do most others, but they should be lifted early, in order that they may be well established before cold weather. Cut back their straggling growth severely.

CURRANT AND GOOSEBERRY TREES.—The Gardeners' Magazine (Eng.) describes and figures some remarkable currant and gooseberry trees growing in the garden of Col. Fox, at Kensington. He has an avenue of gooseberries trained as pyramids and thirteen feet high, and standard currant-trees which are five feet from the ground to the commencement of the head. Our gardeners would find it difficult to afford the time to produce such specimens did not the destructive attacks of the borer render it quite impossible. Some years ago our horticultural books and journals advocated growing the currant and gooseberry in the form of a small tree, or upon a "single leg," as it was then called. Such specimens make handsome objects in the garden, but as a general thing, after they have grown to a good size, the borer finds its way into the stem and that is the end of it. Our cultivators have found, to their cost, that it is safer to have several stems than a single one.

THE HOUSEHOLD.

☞ *(For other Household Items, see "Basket" pages.)*

Drying Fruit, Corn, etc.

J. N. Nind, Du Page Co., Ill., reminds us of a drying-box, which we think we have already published, but it is well to call attention to it at this season, as it is a very convenient arrangement. It is a box like a hot-bed frame, covered with one or more sashes. Window-sashes, or those made especially for hot-beds, will answer equally well. The box should be higher at one side than at the other, to give a slope to carry off water, and the better to catch the sun's rays. It should be in all respects like a hot-bed, except that it must have a bottom, and be set up upon pieces of joist, or some other material, to keep it from contact with the earth. Several holes are to be bored in each side of the box, for ventilation; these are to be covered with gauze, to keep out insects. Fruit, etc., will dry rapidly in such a box, and be kept clean; besides, it need not be brought in at night or during a rain.

Home Topics.

BY FAITH ROCHESTER.

ACCOMPLISHMENTS.—Kate G., who knows what I wrote for Annette's benefit last month, wants me to say something on the general subject of accomplishments for women. She wants to know what I would advise about studying music, painting, dancing, etc.

From the busy lives of most persons, some things, very desirable in themselves, must get crowded out. "Every thing depends upon *what* gets crowded out," dear Miss Craydock says, in Leslie Goldthwaite's "Summer." The accomplishments named above are not essential to the existence, or to the absolute comfort of any body. But bare existence is, by no means, *living;* and physical comfort is only essential as the necessary foundation for the healthful development of the higher faculties. The needs of the body are imperative, however, and you can not slight them without wronging the soul that inhabits the body. So it seems to me that every woman should be skilled in the preparation of wholesome food and comfortable clothing, whether she knows how to play the piano or not; but let her also learn to make music.

The best of all music is that of the human voice, well cultivated. It seems to me much better to learn to sing sweetly, than to learn to play on any musical instrument. Many voices, naturally good, are strained and spoiled very early by the effort to sing too loud. Some of the best professional singers were allowed to sing very little during childhood, or only with moderate power. "Louder! louder!" the leader of singing at the Sabbath-school exclaims, and the young voices of the poor little victims stretch to their utmost capacity to satisfy the unreasonable demand. Some leaders of children's singing seem to suppose that to keep time and sing loud are the chief requisites of good singing. Quality is sacrificed to quantity, and many a child suffers life-long injury from this cause. The ability to sing, even moderately well, is of great value to a mother. Most married women are obliged to give up their piano-practice while they have the care of young children, but there is a chance for some vocal music every day. You can not sing the little lullabys too sweetly. Every day I am thankful for my own poor little gift, which rarely comes into service anywhere except in the nursery. While one baby is lulled to happy rest by the singing of little rhymes from "Songs for the Little Ones at Home," a larger one sits near, or lies upon the floor, resting, too, and laying by hard questions to ask me at the first opportunity, about the meaning of what I sing.

Among accomplishments to be desired I would rank the ability to read aloud with clearness and proper expression. It is a very rare accomplishment, but one that may be made to add greatly to domestic happiness.

A great deal of time and money is fooled away in lessons on the piano, where there is little natural gift in that line, and where the motive is merely a desire to make a display. A young girl who wishes to study instrumental music had better satisfy herself first that nothing more important is likely to be crowded out by her music lessons, and that a real love and talent for music animates her, more than the wish to shine in society. The desire to dazzle others, or to be admired, is an unworthy motive; not so with the honest wish to contribute in every way we can to the rational pleasure and entertainment of society about us.

I think drawing—mechanical drawing, and sketching from nature—should be taught to every child, not merely as an accomplishment, but as a useful art, and as legitimate training for both eye and hand. I don't think much of learning to paint merely for the sake of getting a few "pretty" pictures for your walls. However, there is pleasure and some degree of culture even in that. But there is more real culture in the patient copying, with pencil, or charcoal, of a burdock plant, studying all its outlines, and lights, and shades, just as you see it growing in your back-yard—or in your neighbor's yard, for, of course, you don't allow burdocks to grow on your premises! Any other plant will do. Half a day's faithful study of nature, in the attempt to copy her beautiful shapes and shadows, will make all nature vastly more beautiful and wonderful to you ever afterward. There is no danger of carrying this study too far, if you keep it from monopolizing time that should be given to other duties. And when you come to use colors, the pleasure is increased.

Kate mentions dancing. There is no harm in knowing how, and there is no harm in dancing. It may be made good physical culture and healthful exercise. Usually, this is not the case, and there are so many evils associated with dancing that I don't feel ready to recommend dancing lessons very cordially. I wish we were all ready to take hold and free dancing from its evil associations, and consecrate it to good. It is a heavy task until the leavening influence of simple Christianity has spread farther and deeper through society, but we can at least try to speak frankly, and without prejudice, about it. Did you read what H. W. Beecher wrote lately about his memory of the single time when his sainted mother danced before her little flock of children and their father?

In my opinion, it is for the good of man, and, therefore, for the glory of God, to cultivate the love of the beautiful, and the ability to express it as perfectly as possible to all the senses—not for the sake of the senses, but for the sake of the soul, to which the senses may all be made to minister, by judicious cultivation and exercise.

SUNDAY HEADACHES.—They are a reality—a dreadful reality—as many weakly persons know to their sorrow. Why should they come just once a week, and on Sunday, too? I used to wonder about it when I was a little girl, and had to lie abed, or in my eldest sister's arms, enduring the misery of a sick or a nervous headache on a Sunday afternoon. The headaches used to begin to come on, or to suggest themselves somewhat, before I started for church; and when I begged to stay at home on the plea of sickness, after a whole week of exemption from such suffering, I do not wonder that the request was deemed absurd by stronger persons, and that I was sometimes obliged to choose between going to meeting or taking a dose if I stayed at home.

I can see now that the Sunday habits of many families are directly conducive to headache, stomach-ache, and other physical discomforts, with accompanying mental stupidity. When Sunday comes, overworked people are glad to sleep a little later than usual, and perhaps it is best that they should do so. But for people who are not overworked, such late rising is a bad beginning of a good day, and sets the stomach out of order at the outset, by breaking in upon the usual habit of breakfasting. Some feeble persons can not lounge in bed after the time of waking, without rising with a headache. The stomach is already out of tune before the late breakfast is ready, and the children are apt to be hungry and cross. In many families it is any thing but a pleasant and leisurely task to get all the members ready for church or Sunday-school; and it is not strange that the body calls for rest, when once seated in the church pew, more earnestly than the mind for instruction. Drowsiness is a natural result of the whole week's work and the whole morning's proceedings. Add to this the poor ventilation of the church, the crowd of changing colors and shifting scenes, and the misery of many of the fashions of women's head-gear, and it is not strange that many a mother, at least, feels as though she has done a hard day's work when she goes home from church to a late and perhaps a heavy dinner.

It would be more healthful, and so more religious in one sense, to have the hours for rising and eating vary as little as possible from those observed on other days. Extra Sunday naps ought not to be made necessary by the irreligious conduct of the whole week. Earlier hours for bed every night would give a more reasonable and comfortable day of rest on Sunday.

BY EXPRESS OR BY POST.—A friend lately sent me a present of a package of books and picture-cards of wild animals, birds, and foreign people, for the children. She sent by express, paying the charges herself. So I need not hesitate to say that she might better have sent the parcel by mail, as printed matter. Large parcels, on which you must pay letter postage, cost heavily; but in this case the expense would not have been more than half what it cost to send the same so far by express. Had the distance been shorter, her way would have been the better one; but in sending by express, the expense constantly increases with the distance, as the parcel changes from one line to another. You can send a printed parcel by mail from Boston to Oregon as cheaply as from Boston to Springfield. But be careful not to send any thing as printed matter which does not properly come under that head. It is easy to find out the law on the subject, and silly, to say the least, to attempt to evade it. A friend once sent me a bouquet (much faded, of course, when I received it) in a newspaper, and I had to pay twenty-five cents for it when I took it from the office. A few words, thoughtlessly written on the margin of a newspaper by me when a school-girl, cost the friend so addressed twenty-eight cents, besides some shame on account of my folly.

TREATMENT FOR "CROSS CHILDREN."—Mrs. Mann commends the good sense of a mother of her acquaintance who used to give her children medical treatment to cure their evil tempers. She acted under the advice of a good physician, and the children, as well as their mother, learned to observe the moral effects of an emetic! It seems quite reasonable. In such a case, as in all others, "prevention is better than cure." A simple, wholesome diet, free from rich and spicy and greasy combinations, plenty of quiet sleep and exercise in pure air, and a clean skin—these are the preventive measures, if we would escape peevishness and quarrelsome tempers in children. Even with the greatest care for their physical condition, we need not expect perfect dispositions, for the little creatures *will* inherit more or less of "the old Adam."

When young children cry much, the trouble is apt to be in the stomach. If we have reason to suspect that some undigested matter there causes the irritability, a warm-water emetic (sickishly warm) will sometimes bring speedy relief. Pieces of unripe fruit will sometimes be thrown up, and so cease to torment the little sufferer. I have seldom resorted to this; but a cool, wet compress, bound over the stomach and bowels, will often cause a marked change for the better in the temper of a child. When I find my child incapable of being pacified by playthings or fun, I sometimes think to ask, "Don't you want a compress on?" and often the suggestion is welcomed by the little one. Then I am glad enough that I did not punish for naughtiness, instead of trying to cure sickness. Sometimes hunger or cold makes a child peevish when we little suspect it.

OATMEAL GRUEL.—This is a favorite dish with

us, and with many of our friends. I was glad to see that William Cullen Bryant knows its virtues, and mentions it in his letter describing his method of living at such a good old age. He uses it as a breakfast dish. We more frequently take it for our supper.

Oatmeal is very nutritious. It has an odd taste, that is not always agreeable just at first, but it is generally much relished after a little trial. Some like the gruel thinner than others do. We use about two level table-spoonfuls to a quart of water. Make a batter of the meal and a little water, and stir it into boiling water. Let it boil gently from fifteen to thirty minutes, stirring it most of the time. Of course most people will salt the water. I do myself, though not sure that it is necessary or best. Cream is all the seasoning we care for after it comes to the table, though some use sugar also. Stirred thicker, it makes an excellent pudding.

KNEE-BREECHES.—Mrs. B——, Holley, N. Y. The little "knee-breeches" are to be made, as you suppose, in two separate pieces, and fastened each to a button, or through a button-hole in the skirt, one on each side of the child's body. Make them a little longer than the pattern given in the *Agriculturist* shows. You will find no difficulty in arranging the diaper under it—bringing the corners through under the straps of the little breeches. In spring or fall weather I sometimes put these on over the cotton drawers of my two-year-old baby.

Hints on Making Pickles.

BY ESTELLE EDGERTON.

Care should be taken to procure unadulterated vinegar. It is very unsatisfactory to make pickles unless you are sure your vinegar is perfectly pure. It is better to go some distance from home to procure reliable vinegar than to use that which is not warranted free from foreign acid. The quantity of salt water used in scalding the vegetables will indicate the quantity of vinegar required. About a pound and a half of salt to a gallon of water is the usual allowance for this operation. All vegetables, excepting onions, make better pickles, if young and tender. I know a lady who pickled a peck of yellow butter-beans, full-grown, and bought at the grocery at a fancy price. They were highly and expensively spiced, but when brought to table were so tough and stringy that it was found impossible to eat them. Beans are not fit to pickle after the seed has commenced to absorb the juices of the pod. The smaller and greener bean-pods are, the nicer the pickle. When the conditions are right, they make as delicious a pickle as can be made.

Very early and green melons make a fine pickle. If they will not snap off, rind and all, without effort, they are unfit for use.

Most housekeepers differ in their methods of making pickles; but if good vinegar is used, the spices the same, and the vegetables tender, the results will be very nearly the same. It is only a question of time. What I mean is this: In the long run it does not matter so much what the salting process has been, whether they have been in salt three days, twenty-four hours, or only a few minutes. Very excellent pickles can be made without putting the vegetable in salt at all, but it will take a longer time for the vinegar to penetrate it. The object of putting vegetables designed for present vinegar-pickling in salt and water is to extract or reduce the natural juices of the fruit in order to make room for the vinegar to enter readily. A very little alum dissolved in the vinegar restores the crispness lost through the action of the salt. All young tender and green vegetables are adapted to acid pickling, to which sugar would be inappropriate; but ripe vegetables, which have lost their snap, such as yellow cucumbers, are better when the acid used receives a due proportion of sugar. Pickled fruits are better when the sugar predominates over the acid of the vinegar. Cloves, cinnamon, and cassia-buds are, in my opinion, only adapted to those pickles in which sugar is used. Mace, mustard-seed, capsicums or red peppers, green peppers, garlic, black peppercorns, ginger-root, and bay-leaves are best adapted to a purely acid pickle.

INDIA PICKLE.—After peeling and slicing a root of horseradish, chop it fine, also a half-dozen medium-sized onions, three or four green peppers, removing the seeds, and a cabbage. Pour over the whole, after mixing, a weak brine, and allow it to stand over night. Spice some vinegar with allspice and mace, adding cloves and cinnamon, if you like. Heat the vinegar and spice to boiling, with a small quantity of alum, and turn it over the pickle. It will be fit to eat in three weeks.

YOUNG BEANS.—Gather them when quite small and tender. Pour over them a brine made in the proportion of an ounce of salt to a quart of water. It should be scalded. Let them stand over night. Drain off the brine, and pour over hot spiced vinegar with a trifle of alum.

NASTURTIUMS.—Let them stand in salt and water a few days, when they should be well drained and scalding-hot vinegar poured over them. No spice. Put into a narrow-mouthed bottle and cork well.

PEPPERS, GREEN.—Take out the seeds. Soak them for a few days in salt and water. Then pour over them hot vinegar. They are good when opened carefully on the side, stuffed with cabbage, and then put into vinegar.

MANGOES are made of young and tender melons gathered late in the season. Cut out a small slice and remove the seedy portion. Stuff with small cucumbers, radish-pods, nasturtiums, young onions, and cauliflower, or any thing you like, using mustard-seed as a spice, about a teaspoonful put inside of each melon; replace the piece and tie it on. The melons and stuffing ingredients should be soaked in brine for two days before fixing them for the vinegar. Pour the vinegar over them scalding hot, with a piece of alum as large as a hickory nut to a gallon.

PEACHES, scalded in salt and water, thoroughly wiped, and hot spiced vinegar poured over them, make a good pickle.

PURPLE OR RED CABBAGE.—Take off all the tough outside leaves, slice them thinly and evenly, put them in layers, and sprinkle salt freely over each layer, and let them remain twenty-four hours. Drain the cabbage well. Boil up some vinegar and add alum, and spice to your taste, and pour hot over it. Repeat this process for three or four days.

GHERKINS.—Scald in salt and water. Drain and pour hot spiced vinegar over them.

CUCUMBERS.—There are many different methods for putting up this fine pickle; almost all are good. From two to four inches long, and as thick as the finger, is the best size. The quicker grown, the better. One way is to give them a good scald-up in brine, wipe, and pour over spiced hot vinegar. Another is to soak them in hot salt and water twenty-four hours, and then pickle them. You may put them in salt and water as you pick them, and finish them when they are all collected from the vines. Scalding several times will make them green and brittle. Peppers and onions improve the flavor. Horseradish and green grapes are excellent, added to cucumbers, and, in fact, improve pickles generally.

ARTICHOKES, JERUSALEM.—Soak in salt and water for a few days, or until the skin can be removed. Rub off the skin, and pour boiling spiced vinegar over them. Let them stand in the vinegar four or five days, scald up again, and repeat this until the artichokes are thoroughly pickled.

ONIONS.—The best time to pickle onions is in October. Small button onions are the best. Cut off the end smoothly with a sharp knife. Pour a strong, hot lye over them. Let them stand until the skin is loose. Pour off the lye, and wash them in clear water before putting in the hands. The skin may now be readily removed. When skinned pour over them a good brine, and let them stand a week, or until they are transparent. Drain and pour boiling vinegar over them. They need very little, if any spice. If not convenient to use lye, the roots and tops may be cut off smoothly, and the salt and water put over them before the skin is taken off. In that case they will not affect the eyes in the usual unpleasant manner.

CAULIFLOWERS should be parboiled, cut into small pieces, and allowed to stand in a brine a few days. They may then be drained, and spiced vinegar poured over. They may be colored with beet-root vinegar, or, if added to the red cabbage, they will turn of the same color as the cabbage.

PEACH MANGOES.—Cut off a slice from the stalk-end large enough to allow the stone to be removed. They may then be filled with a few eschalots, a little horseradish, or chillies, adding spice. Replace the piece, and pour over scalding-hot vinegar.

Salad Dressing.—"B. L. J.," Burlington, N. J., sends what he considers an improvement on the Salad Dressing given in July: "First are the necessary tools. There is now made and sold at most furnishing and country stores, a wire muddler (egg-beater), which is worked by a spring in the handle, and which makes what was formerly a task in mixing salad dressing, a mere pastime. With this take a large-sized tumbler, or a bowl, and put in the yolk of a fresh *raw* egg. Drop on it ten drops of vinegar; then pour in a steady stream of pure oil, about one eighth of an inch in diameter (keeping the muddler rapidly going by pressing the handle down, and allowing it to spring back), until a gill of oil is added to the egg. It will rapidly thicken, until the whole mass adheres to the muddler, and can be lifted by it from the glass. Now, in a cup, mix two mustard-spoonfuls of mustard, one full salt-spoon of salt, half that quantity (or less, according to taste) of cayenne paper (cayenne being more wholesome than black), and *one teaspoonful of pure cider-vinegar*. Mix well, and then add gradually to the oil and egg, stirring rapidly and well, until it is brought again to the original consistency.

"Sandwiches are excellent when the above dressing, minus the vinegar and plus more mustard, is used to spread over the bread instead of butter. No good salad dressing can be made unless the oil is not only pure, but also kept in a cool place, and it is improved by placing the oil bottle, for a short time before making, in ice-water. I presume you have heard the saying that 'it takes four men to make a good salad—a spendthrift for oil, a miser for vinegar, a judge for salt, and a madman to stir.'"

Recipes.

Sweet-Breads.—To cook, put a piece of butter into the pan you use; let it get rather hot. Now put in the sweet-breads. Do not blanch or scald, or wash them, if you want them prime. Do not season them now. Let them cook thoroughly. When a fine brown, sprinkle salt all over them. Put *no* pepper—pepper is too strong for them. Pour a *very little* water into the pan. Boil it up and pour on the dish. A little pork or ham or bacon fried, should be served with them. Butter improves them very much, and you may be generous in its use, when cooking for the table. For invalids, as little as possible should be used; and if butter is not allowed the patient, a *trifle* of bacon liquor or lard must be used instead.

"Patent Fly-brush." — "J. A. W.," Springfield, Ill., says: To avoid the necessity of using a fly-brush at the table during meals, when flies are troublesome, I pour a thin stream of molasses upon the rim of a plate, and set it on the side of the table, where the flies will get the least disturbance; and so many of them will gather on the plate, that those not thus gathered will cause little annoyance. When the plate is first set, it is well to wave the hand to drive them towards it. I call it my *patent fly-brush*.

Green Corn.—The following is going the rounds of the papers, and is sent us by a lady who says that she has tried it with success. We have not tried it. Dissolve 1½ oz. Tartaric Acid in ½ pint of water. Cut the corn from the cob and cook it. Add two tablespoonfuls of the acid solution to each quart of corn and can immediately. When used stir half a teaspoonful of soda in each two quarts of corn. Allow to stand 3 or 4 hours before cooking. Then cook as fresh corn. Here is a chance to experiment, but we have no great faith in it.

BOYS & GIRLS' COLUMNS.

Red River Trains.

BY "CARLETON."

I am writing to you this month, my young friends, from the Red River country. You say that the Red River is in Arkansas, and empties into the Mississippi. So it does, but there is another Red River away up in the North, which runs through a wonderful valley, where you can see some things that you can not see anywhere else in the world, and which soon will not be seen even there—I mean, the Red River trains and carts.

I have seen a great many of the rivers of the world, and many fertile fields, but I do not know of another valley like this one of the North. You will see by looking on the atlas that the river runs north into Lake Winnipeg, and from thence its waters go out into Hudson's Bay. The ground is very level. How would you like to plow a furrow fifty miles long? You can do it here. You might start your team in the morning on its eastern border and drive west all day until sunset, and you would have to whip up the oxen well to get to the center of the valley by sunset. Then, crossing the river, you might start the next morning and drive all day, still toward the west, and you would be leg-weary and tired out long before you reached the western border. And all the while you would be turning up rich black loam, and the oxen would be trampling through luxuriant grass. This would be plowing a furrow across the valley. Now let us turn one lengthwise this field. We will travel northward from its southern border. We shall have here and there to cross a small stream, but were it not for these, we could plow a furrow straight as a line the entire length of the valley without turning the plow from the sod. It would be a long furrow—fully three hundred miles in length! Think of plowing from New York to Washington; or, from Boston to Philadelphia; or, from Chicago to St. Louis; or, from Albany to Buffalo! Fifteen miles a day is a good distance for an ox team to make. We should be 20 days then in plowing a single furrow, or six weeks in making one bout! We should have to carry our camp-kettle and stew-pan with us, and lay over two or three times to wash our clothes! We should want a telegraph constructed so that we could communicate once in a while with the folks at home. Three hundred miles! and not a stone, a hillock, or knoll to prevent us from turning an unbroken furrow. Wonderful!

But the Red River trains are almost as much of a curiosity as the valley itself. They come from Manitoba—the Winnipeg country—and are made up of carts, each drawn by a horse or a pony, or an ox or a cow. You would laugh to see one of the carts, with its broad wheels, seven or eight feet high; its wooden axle, so loose in the hub that the wheel wobbles in all directions, and squeaks, squeaks, squeaks at every turn. There are two great bungling, heavy shafts, and a little rack upon them. The concern is made wholly of wood and rawhide. There is not an ounce of iron about them. The bands to the hubs are of rawhide; the tires of the wheels are of hide; the rack is tied together with hide. Shake the concern, and it almost rattles itself to pieces, and with your jack-knife you could cut the thongs and let it fall apart in a minute or two. It is the craziest cart you ever saw. The people who drive these carts are half Indian and half French. They like to hunt buffalo, and race over the prairies on their ponies, and they had much rather smoke their pipes and tell stories than to hold the plow or hoe corn, and so they lead a shiftless life.

Every summer a long train of these carts—nearly three thousand of them in all—come from Winnipeg to Minnesota, bringing buffalo robes and fox and wolf skins, and carrying back goods.

You would like, I am sure, to see one of these trains—the men and boys on Indian ponies, and the women and black-haired girls riding in the carts, whipping up the oxen; or, when they stop at night, cooking supper in a stew-pan; milking the cows; then all gathering round the camp-fire in the evening, smoking their pipes, telling stories, and huddling together under the cart, or in it, wrapped in their blankets, and sleeping just as soundly and as sweetly as you in your bedrooms.

They always have a great number of spare horses and ponies that keep along with the train, nibbling the grass and kicking up their heels.

It is great fun to see them cross a river. They do not care to swim across, although they have no objection to wading in a little ways. At first they attempt to get away, run up the bank, and dart through the bushes, but the men and boys, mounted on the fastest ponies of the herd, head them off and la them back into the current. The little colts, fearing not ng, give a leap and are head and ears under water, but they quickly come to the surface, and snort, and puff, and blow like a donkey-engine. First one, then another, and then the whole herd plunge in. It is very funny to see a hundred noses and ears, nothing else, pushing across the stream.

But what a shaking of manes when they are all across, and then they caper off and have a jolly run, as if they felt refreshed after their swim, as I have no doubt they do.

If you would see a Red River train you will have to be quick about it, for the iron horse that eats wood and spits fire, that is to run from Lake Superior to Puget Sound, will be thundering through the valley in a few days, and then the Red River trains will be seen no more.

Tobacco—A Speech for Boys.

BY "BLUE-MOUNTAIN" (13 years old).

I go against tobacco, because it goes against me. I eschew it. I will not chew it. I will tell you why. 1st. I do not like the taste of it; it tastes worse than any medicine you can put to my lips, it is such sickening stuff. 2d. I don't like the looks of it; when I see the tobacco I pity the mouth that chews it; and when I see the mouth which chews it I pity the tobacco; it is of a dirty dirt-color. 3d. I don't like the effects of its use: it makes the teeth yellow and brown when they should be white; it makes the breath offensive when it should be sweet; it injures the voice so that those who chew can not sing and speak to advantage. The voice breaks, and the chorister croaks like a raven when he should sing like a bobolink; the orator merely barks, and a tobacco bark is very disagreeable. 4th. I fear tobacco creates an appetite for liquor; it lights a fire in the throat which water may not put out.—M. K. B., Jr., Reading, Pa.

Aunt Sue's Puzzle-Box.

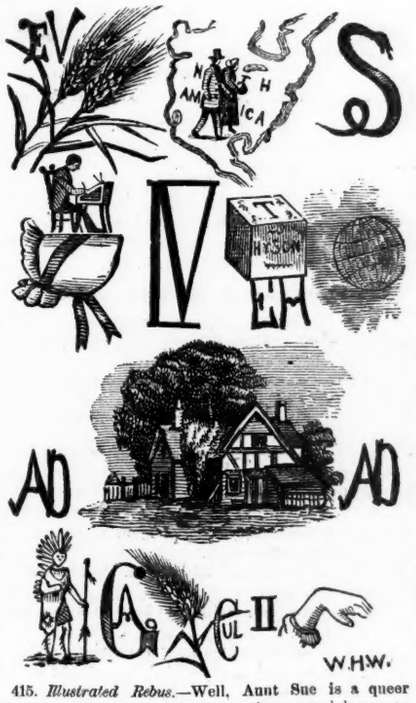
We were rather hurried last month, and our announcement concerning the prizes for the solutions of the anagrams, and our notices to correspondents, were "too late." I was delighted to think they would "keep," notwithstanding the warm weather, and you shall have them now.

THE ANAGRAM PRIZES

were drawn by O. A. Gage, Pelham, N. H., Blue Bird, Bridgewater, Mass., H. E. P., Stratford, Conn., and Josiah, Box 767, P. O. New York City.

Now I am going to give you a fish story prepared by our friend TEMPY. You are to fill all the blanks with the name of some fish that shall make sense of the story. In sending the solution, don't trouble yourselves to write out the whole *poem;* I should prefer to have you send your answers in this style: 1. Whale. 2. White. 3. Smelt. 4. Shiner. 5. Shark. 6. Bass, and so on (of course I have not given the right answers): and all those who give a correct version *of the whole*, shall have honorable mention.

Don't forget to direct your answers to AUNT SUE, Box 111, P. O. Brooklyn, N. Y., and NOT to the office of the *Agriculturist.*



415. *Illustrated Rebus.*—Well, Aunt Sue is a queer woman. Here she has left some rebuses, and has gone off into the country, without saying what shall be put under them. We can't stop to guess them out, but we have not the slightest doubt that they are very good, and we are sure that they look sufficiently puzzling.—ED.

A FISH STORY.

BY SALMON C. PIKE, JR.

Once on a time, down East, in days of yore,
An old [1]—— dwelt (the [2]—— was cape [3]—— shore),
An [4]—— she, who erst sold beer for bread,

416. *Illustrated Rebus.*—See remarks under the rebus above, and guess away at it. When you have found the answer, don't send it to this office, but to Aunt Sue. Her Post-office direction is given in another column.

And happy lived till [5]—— enough to wed,
She might have had a good old [6]——.
Alas! alas! she chose that scamp ——[7]——.
Ah! me, they lived a [8]—— and [9]—— like life,
Till death in pity freed the poor [10]——.
——[11]—— wooed her next, oft hight ——[12]——,
A [13]—— man he, and sailor off and on,
Who, though a reg'lar [14]—— reared and bred,
Rudder and [15]—— scorned, as soon as wed.
"I'm waxing old," he said, "infirm and [16]——,
I find the seas too [17]——, the wind too [18]——."
In sooth, he'd rather [19]—— himself on [20]——.
Or [21]—— with [22]—— from off some [23]——y nock,
Or [24]—— along the [25]—— or tavern stay,
And [26]—— his [27]—— and [28]—— the livelong day,
Till [29]——light [30]——'ring, or the [31]——'s pale [32]——:
Then [33]—— at last from oft replenished [34]——,
The [35]—— feels his homeward way at dawn,
To [36] —— there like [37]—— in his stye,
Or like an o'erfed [38]—— till noon to lie.
No wonder [39] "——" dubbed by village boys,
Who said old ——[40]—— hailed from Illinois.
One morn, [41]"—— up," she cried, "you lazy [42]—— f"
(She punched his [43]—— and shook the [44]—— [45]——.)
"Of butter not a [46]—— or [47]——, or crumb
Of meat or fish big as a ——[48]——:
And here like [49]—— snorting lies this sot.
Sdeath! —— [50]—— —— and hark ye —— [51]—— ——."
Her voice was [52]——, and when she chose to [53]——
Each word a [54]——, tongue as [55]—— sharp:
No [56]—— from [57]—— drawn inspired such dread
As this she [58]——. (To *himself* he said)
"By [59]——! she makes each tortured ear [60]—— feel
As if 'twere stung by an ——[61]——.
Sweet wife," he plead (for brewing storm he [62]——,
And the vexed [63]—— vainly hoped to melt)
"My [64]——! dearest woman on the [65]——"
(Here from his bed he leaped into his robe),
"I'm off, for lo! last night I had a dream.
Methought I caught, ah! such a [66]—— of [67]——,
Bought by the [68]—— Sam upon the hill,
Did your lean purse with solid [69]—— fill,
Bought Bob some [70]—— and you a [71]—— shawl,
Me a ——[72]——, and Pet a doll."
Jack went and with him his fish [73]—— took.
With clams for [74]——, bob, sinker, line, and hook;

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MAKING MUD PIES.—*Drawn and Engraved for the American Agriculturist.*

Went, but he ne'er returned. Alas! sad fate,
It grieves my very [75]—— to have to state
Next morning [76]—— and [77]—— both were found,
But not ——[78]——, although they dragged the [79]——,
To *fleh-her-man* in vain the neighbors tried.
So Moll a relict lived, a widow died.
In truth, 'tis said, her grief was so profound
That she herself and grief in ——[80]—— drowned.

TEMPY.

ANAGRAMS.

1. O! rate Abel.
2. Suit old ice.
3. In a poor nest.
4. True trial, E.
5. Coin from G. T.
6. Dent piece.

E. L. K.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

ANAGRAMS.—1. Authorities. 2. Ultimate. 3. Unpleasant. 4. Unsurpassed. 5. Naturalists. 6. Distinguished. 7. Obliterates. 8. Imperturbable. 9. Reconnoitred. 10. Overhauled. 11. Daniel Webster, the Statesman. 12. Aaron, Aron. 13. Scup, cup. 14. Slaughter, laughter. 15. Two men, women. 16. Albert Gates Pettinger.

17.

MASTS	GRACE
ASHEN	ROMAN
SHARE	AMEND
TERSE	CANOE
SNEER	ENDED

18.

19. Idleness is the sepulchre of a living man.

20. Kingfisher. 21. Raspberry. 22. Pineapple. 23. Oakapple. 24. Rattlesnake.

25. When little more than boy in age,
I deemed myself almost a sage;
But now seem worthier to be styled
For ignorance almost a child.

26.

L
RED
FRANC
AMERICA=Lear.

27. Bungo. 28. Ignore, region. 29. Brush, shrub. 30. Deform, formed. 31. Thing, night. 32. Three, there.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

E. L. CLARK. I "would rather have" short, pithy puzzles; charades, double acrostics, almost any thing but numerical enigmas and cross-words.

STAR AND CRESCENT. You have asked a good many questions, but I will try to answer them concisely. 1. For convenience of Publishers. 2. Yes. 3. About a thousand.

JERE PLUMER answers No. 12 of the June puzzles with "S-hot (shot), or S-warm (swarm)," which is not bad.

MARY SOULE. The "diamond cross-puzzle" speaks for itself in the "answers," this month.

L. S. C. Many thanks for your puzzles. Your "Proverb Pi" is particularly good. I know how much patience its construction costs.

BLUE BIRD. Of course I missed you. "Childish"?—not at all—very wise.

J. B. H. I was only waiting to hear from you once more.

Will those sending enigmatical contributions please specify whether they are for the *Agriculturist* or for *Hearth and Home?*

Thanks for puzzles, etc., to Eleanor, Snicker, Ben, J. B. H., and W. H. K.

Healthy boys love the dirt. That fine fellow whose hat-brim is a little torn, perhaps from climbing trees, sits down on the lap of "mother earth" as though he were not a bit afraid. He is stirring that dough with a hearty good will. We like a boy that can play with girls. Both of these boys are gentlemen. One of them mixes dough while the other one is putting up the stove-pipe. The girl with the cup is making herself generally useful. She does not insist on mixing or baking, but she is a good-natured soul, ready to wait on the rest. The one with the pie already made on that bit of china is the "chief cook." But do you know which one we love best? The one we have not mentioned yet. That little young-old girl-woman in the sun-bonnet. How gingerly she holds that pan, making believe it is hot! Take care! Don't burn your fingers, my dear! We are really afraid that pan is so hot that you will burn your dress! And how about your pies? Nearly done, eh? Give them one more turn in the oven. They want a little more browning at the bottom! Ah! little woman, how red the little cheeks must be under that great big sun-bonnet. How we should like to kiss them! If we dared! For with so much dignity and care, perhaps she would be offended. She is playing old lady so earnestly that she may have forgotten that she is only a sweet little girl lost in mamma's sun-bonnet, and that her pies are only mud!

Blessed days of bare feet and broken china! We who are big and busy, envy you who mix your mud pies under the hollyhocks. Soon you will quit playing and go to work in earnest. God bless you, and may your pies never burn. Play on, and when play-time is over and working-time comes, try to keep your hearts as cheerful as they are now, making mud pies under the hollyhocks.

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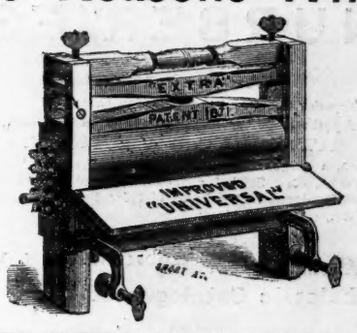

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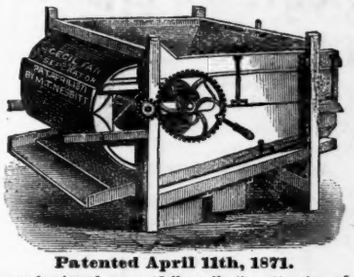

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Peter Henderson & Co.

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Fairs—1871.

State and National Fairs.

Alabama	Montgomery	Oct. 16–20
Arkansas	Little Rock	Oct. 3– 6
American Institute	New York	Sept. 7–Nov. 2
American Pomological	Richmond, Va	Sept. 6–8
Atlanta	Atlanta	Aug. 29–Sept. 2
California	Sacramento	Sept. 18–23
Cherokee-Georgia and Alabama Agricultural	Rome, Ga	Oct. 10–13
Cincinnati Industrial	Cincinnati, O	Sept. 6–Oct. 7
Colorado	Denver	Sept. 12–16
Cotton States Mech. and Agricultural	Augusta, Ga	Oct. 31–Nov. 4
Dixon Horse	Dixon	Sept. 13–16
Georgia	Macon	Oct. 23–26
Illinois Swine	Chicago	Sept. 19–21
Illinois	Du Quoin	Sept. 25–30
Indiana	Indianapolis	Oct. 2– 7
Iowa	Cedar Rapids	Sept. 11–15
Kansas	Topeka	Sept. 11–15
Louisiana	New Orleans	Nov. 18–27
Maryland	Baltimore	Oct. 3– 6
Michigan	Kalamazoo	Sept. 19–22
Mich. Nat. Horse Ex	Kalamazoo	Aug. 15–18
Mich. Union of State Pom. So. & N. Ag. & Mech. So.	Grand Rapids	Sept. 12–15
Minnesota	St. Paul	Sept. 26–29
Missouri	St. Louis	Oct. 2– 7
Mississippi	Jackson	Oct. 23–28
Nebraska	Brownville	Sept. 26–29
New England	Lowell, Mass	Sept. 5– 8
New Hampshire	Dover	Sept. 26–29
New Jersey	Waverley	Sept. 19–23
New York	Albany	Oct. 2– 6
Ohio	Springfield	Sept. 25–29
Oregon	Salem	Oct. 9–15
Pennsylvania	Scranton	Sept. 19–22
Pennsylvania Hort	Philadelphia	Sept. 12
South Carolina	Columbia	Nov. 6–11
San Francisco M. I	San Francisco	Aug. 8–Sept. 5
San Francisco Bay H	San Francisco	Aug. 8–Sept. 5
Tennessee	Nashville	Sept. 26–30
Vermont	St. Johnsbury	Sept. 12–15
Virginia	Richmond	Oct. 31–Nov. 3
Virginia Horticultural	Richmond	Sept. 6– 8
Wisconsin	Milwaukee	Sept. 25–29

District Fairs.

Agr. and Hort. Union	Aurora, Ill	Sept. 25–29
Belle Plain Union	Belle Plain, Iowa	Sept. 19–22
Bridgeton District	Bridgeton, Ind	Aug. 28–Sept. 2
Central Iowa	Des Moines	Sept. 16–22
Central Kentucky	Danville	Sept. 19–22
Central Michigan	Lansing	Oct. 3– 5
Central Missouri	St. Joseph	Sept. 22–24
Central Ohio	Mechanicsburg	Sept. 19–22
Central Pennsylvania	Altoona	Sept. 12–16
Elgin	Elgin	Sept. 5– 8
Farmers' & Mech. Inst	Danville, Ill	Sept. 19–22
Horse Fair	Dixon, Ill	Sept. 13–16
Middleton District, Ind	Middleton	Sept. 12–16
North-eastern Iowa	Pottsville	Oct. 4– 6
Northern Kansas	Atchison	Oct. 3– 6
Northern Kentucky	Florence	Sept. 19–22
Northern Mich. Stock Agr. & Mech. As	Salisbury	Sept. 26
North Missouri	Hannibal	Sept. 26–30
Northern Ohio	Cleveland	Sept. 12–17
Northern Wisconsin	Oshkosh	Oct. 2– 5
So. Kans. & Mo. Ag. Ass	Fort Scott, Kansas	Sept. 25
Southern Wisconsin	Janesville	Sept. 12–15
South-west'n Wisconsin	Mineral Point	Sept. 5– 9
South-west Iowa	Red Oak	Oct. 3– 6
State and Pleasant Valley Grape-Growers'	Hammondsport	Sept. 26–28
Tennessee A. M. Ass	Tuscumbia, Ala	Oct. 24–28
Union—Iowa	Mechanicsville	Sept. 19–22
Union Fair	Milton, Iowa	Aug. 23–25
Union Central	Atlanta, Ill	Aug. 29–Sept. 2
Union of Southern Ohio	Blanchester	Aug. 29–Sept. 1
Union Fair	Warren, Ill	Sept. 12–15
West Alabama	Eutaw	Oct. 17–21
Western New York	Rochester	Sept. 26–29
Wisconsin Valley	Mazo Manie	Sept. 13–15

Provincial Fairs.

CANADA.

Barton and Glanford	Glanford	Oct. 10
Brant North	Paris	Oct. 3– 4
Brant South	Brantford	Oct. 5– 6
Brockville and Elizabethtown	Unionville	Sept. 19–20
Blandford	Plattsville	Sept. 22
Canada Provincial (Ont.)	Kingston	Sept. 25–29
Central	Hamilton	Oct. 4– 6
Cheese Fair	Ingersoll	Sept. 21–22
Dundas	Dundas	Aug. 30–Sept. 1
Durham and Hope	Port Hope	Oct. 12–13
East Wawanosh	Wawanosh	Oct. 3
Elma	Newry	Oct. 4
Esquesing	Georgetown	Oct. 13
Harwich	Blenheim	Oct. 10
Hibbert	Staffa	Oct. 10
Howard	Ridgetown	Oct. 5
Huron North	Clinton	Sept. 19–20
Huron South	Seaforth	Sept. 21–22
Kent	Chatham	Oct. 5– 6
Mara		Oct. 5
McNab	Balmer's Island	Sept. 27
Mornington	Milverton	Oct. 3
Northumberland West	Cobourg	Oct. 17–18
Otonabee	Keene	Oct. 13
Ottawa No. 1	Chelsea, P. Q	Sept. 20
Oxforth North	Woodstock	Oct. 10–11
Oxforth South	Ingersoll	Sept. 21–22
Proton	Ronaldeay	Sept. 20
Perth North	Stratford	Oct. 5– 6
Perth South	St. Mary's	Oct. 3– 4
Renfrew South	Renfrew	Oct. 3
St. Johns, P. Q	Lacolle	Sept. 21
Saltfleet and Binbrook	Stoney Creek	Sept. 20
Southwold and Dunwich	Iona	Sept. 20
Toronto	Toronto	Sept. 19–21
Turnley	Wingham	Oct. 4
Usborne	Exeter	Oct. 2– 3
Vespra	Midhurst	Sept. 22
Wallace and Elma	Listowell	Oct. 3
Waterloo	Waterloo	Oct. 5– 6
Waterloo South	Galt	Oct. 3– 4
Wellington Cen	Guelph	Oct. 10–12
Wellington N	Harriston	Sept. 27
Western Ontario	London	Sept. 26–29

NOVA SCOTIA.

Yarmouth	Court-House	Oct. 5

Town and County Fairs.

CALIFORNIA.

San Joaquin Valley	Stockton	Sept. 12–15
Santa Clara Co	San Jose	Aug. 28–Sept. 1
Sonoma and Marin	Petaluma	Sept. 25–31
Upper Sacramento V'y	Chico	Sept. 26

COLORADO.

Boulder City		Oct. 3– 7

CONNECTICUT.

Hartford Co	Hartford	Sept. 26–29
Middlesex Co	Middletown	Sept. 26–29
New London Co	New London,	Sept. 26–28
Union	Falls Village	Sept. 12–13
Watertown Co	Watertown	Sept. 6– 7
Windham Co	Brooklyn	Sept. 26–28

DAKOTA.

Clay	Vermilion	Sept. 15–16

GEORGIA.

Atlanta Ag & Ind Asso	Atlanta	Oct. 16–20
Columbus Indus. Ass	Columbus	Oct. 31–Nov. 4

ILLINOIS.

Adams Co	Quincy	Sept. 4– 9
Boone Co	Belvidere	Sept. 12–15
Buel Inst. of Putnam Co	Hennepin	Sept. 12–14
Bureau	Princeton	Sept. 18–21
Carroll Co	Mt. Carroll	Sept. 12–15
Cass Co	Virginia	Sept. 5– 7
Champaign Co	Urbana	Sept. 12–15
Coles Co	Charleston	Sept. 6– 9
Damascus F. C	Damascus	Sept. 20
Danville	Danville	Sept. 19–22
De Kalb Co	Sandwich	Sept. 5– 8
DeKalb	Sycamore	Oct. 4– 6
Douglas	Tuscola	Sept. 26–29
Edgar Co	Paris	Sept. 12–15
Franklin Co	Benton	Sept. 13–16
Fulton Co	Canton	Oct. 9–14
Greene Co	Carrollton	Sept. 26–29
Grundy Co	Morris	Sept. 13–16
Henry Co	Cambridge	Aug. 29–Sept. 1
Henderson	Biggsville	Sept. 26–29
Iroquois Co	Watseka	Sept. 5– 8
Iroquois Co	Onarga	Sept. 12–15
Jackson Co	Murphysborough	Sept. 20–23
Jersey Co	Jerseyville	Oct. 10–13
Jo Daviess	Galena	Sept. 26–29
Kane Co	Aurora	Sept. 12–15
Kane Co	Geneva	Sept. 20–23
Kankakee Co	Kankakee	Sept. 12–15
Kendall	Bristol	Sept. 19–22
Knox	Knoxville	Sept. 12–15
Lake Co	Libertyville	Sept. 27–29
La Salle Co	Ottawa	Sept. 5– 8
La Salle Co. Horse	Earlville	Aug. 30–Sept. 1
Logan Co	Atlanta	Aug. 29–Sept. 2
Logan	Lincoln	Sept. 5– 9
Macon	Decatur	Sept. 12–15
Macoupin Co	Carlinville	Sept. 19–22
Madison Co	Edwardsville	Aug. 29–Sept. 1
Marshal	Henry	Sept. 19–22
Menard	Petersburg	Sept. 5– 7
McDonough	Macomb	Sept. 19–22
McHenry	Woodstock	Oct. 3– 5
McLean Co	Bloomington	Sept. 12–15
Mercer Co	Aledo	Oct. 3– 6
Morgan	Jacksonville	Sept. 18–23
Pekin Co	Pekin	Sept. 18–22
Peoria Co	Peoria	Sept. 26
Perry Co	Pinckneyville	Sept. 13–15
Pike Co	Pittsville	Sept. 12–15
Putnam Co	Hennipen	Sept. 12–14
Randolph	Sparta	Sept. 20–22
Richland	Olney	Sept. 20–22
Rock Island	Rock Island	Aug. 29–Sept. 1
Saline	Harrisburg	Sept. 13–15
Schuyler Co	Rushville	Oct. 4– 6
Shelby Co	Shelbyville	Sept. 6–10
Stark	Toulon	Sept. 20–22
Stephenson Co	Freeport	Sept. 12–15
St. Clair	Belleville	Sept. 5– 8
Union of Centralia	Centralia	Sept. 18–22
Union Co	Jonesboro	Sept. 12–15
Union	Warren	Sept. 12–15
Vermilion Co	Catlin	Sept. 5– 8
Vermilion Co	Danville	Sept. 19–22
Wabash	Mt. Carmel	Oct. 3– 6
Warren Co	Monmouth	Sept. 19–22
Whiteside Co	Sterling	Sept. 19–22
Will Ag. and M. Ass	Joliet	Sept. 5– 8
Winnebago Co	Rockford	Sept. 19–23
Woodford	Metamora	Sept. 12–15

INDIANA.

Boone	Lebanon	Sept. 11–16
Cedar Valley	Cedar Valley	Sept. 19–21
Dearborn Co	Lawrenceburg	Sept. 20–23
Daviess Co	Washington	Oct. 24–27
Delaware	Muncie	Sept. 19–22
Edinburg Co	Edinburg	Sept. 26–30
Fall Creek District	Pendleton	Sept. 26–29
Fayette Co	Connersville	Sept. 5– 8
Fountain and Warren	Attica	Sept. 19–22
Fountain, Warren and Vermilion	Covington	Sept. 26–29
Gibson Co	Princeton	Sept. 19–23
Gosport	Gosport	Sept. 6– 8
Grant Co	Marion	Sept. 12–15
Greene	Linton	Oct. 10–14
Hamilton Co	Cicero	Sept. 27 —
Harrison Co	Corydon	Sept. 13 16
Hancock	Greenfield	Sept. 19–22
Hendricks Co	Danville	Aug. 29–Sept. 1
Henry, Madison and Delaware Cos	Middletown	Sept. 12–16
Henry Co	New Castle	Aug. 22–25
Honey Creek	New London	Sept. 21 —
Howard	Kokomo	Sept. 26–30
Huntington Co	Huntington	Sept. 26–29
Indianapolis A. M. & H	Indianapolis	Sept. 25–30
Jefferson Co	Madison	Sept. 25–29
Johnson Co	Franklin	—
Knightstown	Union	Aug. 29–Sept. 1
Lawrence Co	Bedford	Sept. 12
Madison Co	Anderson	Sept. 5
Mooresville	Mooresville	Sept. 4– 7
Morgan Co	Martinsville	Sept. 12–15
Monroe Co	Bloomington	Sept. 20–24
Montgomery	Crawfordsville	Sept. 18–23
Noble Co	Ligonier	Sept. 27–29
Orange Co	Paoli	Sept. 26–30
Owen Co	Gosport	Aug. 29–Sept. 2
Parke Co	Bridgeton	Aug. 28–Sept. 2
Parke Co	Bloomingdale	Sept. 22–25
Perry	Rome	Nov. 1
Posey Co	New Harmony	Sept. 12–15
Putnam Co	Russellville	Sept. 4– 9
Putnam Co	Greencastle	Sept. 11–16
Randolph	Union City	Sept. 19–21
Richmond Co	Richmond	Sept. 12–16
Rush Co	Rushville	Sept. 12–15
St. Joseph Co	South Bend	Sept. 27–29
Spencer	Rockport	Oct. 3 5
Starke	Richmond	Oct. 5– 7
Switzerland & Ohio Co	East Enterprise	Sept. 11
Thorntown Union	Thorntown	Sept. 25–29
Tippecanoe Co	Lafayette	Sept. 4 9
Union Co	Union City	Sept. 19–22
Union Joint Stock	Liberty	Aug. 29
Vanderburg	Evansville	Sept. 7– 9
Vermilion Co	Newport	Sept. 12–15
Vigo Co	Terre Haute	Sept. 5– 9
Wabash Co	Wabash	Sept. 19–22
Warrick Co	Booneville	Oct. 10–13
Wayne Co	Centreville	Aug. 22–25
Wayne Co	Cambridge City	Sept. 26–29

IOWA.

Adair Co	Fontanelle	Sept. 28–30
Adams Co	Corning	Sept. 4– 9
Agricultural College	Ames	Sept. 19–22
Allemakee	Waukon	Sept. 19–21
Appanoose Co	Centreville	Sept. 12–14
Benton Co	Vinton	Sept. 5– 8
Black Hawk Co	Waterloo	Oct. 3– 5
Boone Co	Boonesboro	Sept. 14–16
Bremer Co	Waverley	Sept. 26–28
Buchanan Co	Independence	Sept. 13–15
Cass Co	Atlantic	Sept. 6– 8
Cedar Co	Tipton	Aug. 29–Sept. 1
Cedar, Jones, etc. Cos	Mechanicsville	Sept. 19–22
Cedar Valley	Cedar Falls	Sept. 19–21
Central	Des Moines	Sept. 19–21
Chickasaw Co	New Hamilton	Sept. 19–21
Clark Co	Osceola	Aug. 30–Sept. 1
Clayton Co	Farmersburg	Sept. 21–24
Clinton Co	Clinton	Aug. 28–31
Crawford Co	Denison	Sept. 21–22
Decatur Co	Leon	Sept. 14–16
Delaware Co	Manchester	Oct. 4– 6
Des Moines Co	Burlington	Oct. 3– 6
Fayette Co	West Union	Sept. 28–30
Floyd Co	Charles City	Sept. 21–23
Greene	Jefferson	Sept. 26–28
Hardin Co	Ackley Union	Sept. 6– 9
Harrison and Monona	Little Sioux	Sept. 27–29
Hamilton Co	Webster City	Sept. 13–14
Henry Co	Mt. Pleasant	Sept. 26–29
Iowa	Marengo	Sept. 28–30
Jackson Co	Maquoketa	Sept. 26–29
Jefferson Co	Fairfield	Sept. 26–28
Johnson	Iowa City	Sept. 26–28
Keokuk	Sigourney (?)	Oct. 5– 7
Kossuth Co	Algona	Oct. 6– 7
Lee Co	Keokuk	Aug. 29–Sept. 1
Lee Co	Fort Madison	Sept. 26–29
Linn	Marion	Sept. 6– 9
Louisa Co	Wapello	Sept. 26–28
Madison	Winterset	Sept. 27–29
Mahaska Co	Oskaloosa	Sept. 19–23
Mills Co	Glenwood	Sept. 27–29
Milton Union	Milton	Aug. 23–25
Mitchell Co	Osage	Sept. 27–29
Monroe Co	Albia	Sept. 26–29
Muscatine Co	Muscatine	Sept. 19–21
North-eastern	Postville	Oct. 4– 6
Pottawattamie Co	Council Bluffs	Oct. 3– 6
Poweshiek Co	Malcolm	Sept. 19–21
Scott Co	Davenport	Sept. 4– 8
South-western	Red Oak Junction	Oct. 3– 6
Story	Nevada	Sept. 5– 7
Tama Co	Tama City	Sept. 19–21
Union Co	Afton	Sept. 27–29
Union	Keokuk	Aug. 29–Sept. 1
Union	West Liberty	Sept. 26–28
Van Buren Co	Keosauqua	Sept. 21–23
Wapello Co	Ottumwa	Sept. 26–29
Warren Co	Indianola	Sept. 5– 7
Washington Co	Washington	Oct. 3– 5
Wayne	Linnville	Sept. 20–22
Wilton Union	Wilton	Aug. 23–25
Winneshiek Co	Decorah	Sept. 26–28
Woodbury	Sioux City	Oct. 11–13

KANSAS.

Blue and Kansas Valley	Manhattan	Sept. 26–28
Dickinson	Abiline	Oct. 4– 6
Dodge	Duncan	Sept. 13–15
Doniphan Co	Troy	Sept. 26–29
Douglas Co. Ag. & Mech	Lawrence	Sept. 7– 9
Miami	Paola	Sept. 27–30
Saline	Salina	Sept. 6– 8
Southern Kansas	Fort Scott	Sept. 25–29

KENTUCKY.

Bourbon Co	Paris	Sept. 5– 9
Boyle Co	Danville	Sept. 19–22
Boyd Co	Ashland	Sept. 19
Carroll Co	Carrollton	Sept. 12
Clark Co	Winchester	Aug. 29–Sept. 1
Harrison Co	Cynthiana	Sept. 12
Henry Co	Eminence	Aug. 22–26
Jessamine Co	Nicholasville	Aug. 8

Jefferson Co	Louisville	Sept. 12
Lincoln Stock	Stanford	July 27-28
Madison Co	Richmond	Aug. 8-12
Marion Co	Lebanon	Aug. 29
McCracken Co	Paducah	Oct. 11
Mason and Bracken	Germantown	Sept. 19-23
Mercer Co	Harrodsburg	Aug. 1- 4
Montgomery	Mt. Sterling	Aug. 22
Nelson Co	Beardstown	Sept. 5
Owen Co	New Liberty	Oct. 3
Pulaski Co.	Somerset	Sept. 5
Salvisa Stock	Salvisa	Sept. 15
Scott	Georgetown	Aug. 22-25
Shelby Co	Shelbyville	Aug. 29
Simpson Co	Franklin	Sept. 5
Warren Co	Bowling Green	Sept. 19
Washington Co.	Springfield	Sept. 26

LOUISIANA.

Sabine Valley		Oct. 3

MAINE.

Aroostook Co	Houlton	Sept. 14-16
Cumberland	Portland	Sept. 26-29
Franklin Co	Farmington	Oct. 4- 5
Franklin North	Strong	Oct. 4- 5
Hancock Co	Orland	Sept. 28-29
Kennebec Co	Readfield	Sept. 27-28
Knox North	Appleton	Oct. 4- 6
Penobscot Co. Poultry	Bangor	— — —
Sagadahoc	Topham	Oct. 10-12
Waldo Co	Belfast	Sept. 27-28
West Washingt'n Ag. So	Jonesboro	Sept. 20-21

MARYLAND.

Carroll Co	Westminster	Oct. 3- 6
Cumberland Co	Cumberland	Oct. 17-20

MASSACHUSETTS.

Barnstable Co	Barnstable	Oct. 3- 4
Berkshire Co	Pittsfield	Oct. 3- 5
Bristol Co	Taunton	Oct. 3- 5
Bristol Centre	Myrick's	Sept. 20-22
Essex Co	Ipswich	Sept. 26-27
Franklin Co	Greenfield	Sept. 28-29
Hampshire, Franklin & Hampden Cos	Northampton	Oct. 5- 6
Highland	Middlefield	Sept. 14-15
Housatonic Co	Great Barrington	Sept. 27-29
Hampshire Co	Amherst	Sept. 26-27
Hampden Co	Springfield	Oct. 3- 4
Hampden East	Palmer	Oct. 10-11
Hingham	Hingham	Sept. 26-27
Hoosac Valley	North Adams	Sept. 19-21
Middlefield	Middlefield	Sept. 8- 9
Martha's Vineyard	West Tisbury	Oct. 17-18
Marshfield	Marshfield	Oct. 5- 6
Middlesex Co	Concord	Oct. 3- 4
Middlesex North	Lowell	Sept. 27-28
Middlesex South	Framingham	Sept. 19-20
Nantucket Co	Nantucket	Sept. 27-28
Norfolk Co	Readville	Sept. 21-22
Plymouth Co	Bridgewater	Sept. 28-30
Union	Blandford	Sept. 26-27
Weymouth Ag. & Ind	Weymouth	
Worcester Co	Worcester	Sept. 21-22
Worcester North-west	Athol	Oct. 4- 5
Worcester South	Sturbridge	Sept. 7- 8
Worcester West	Barre	Sept. 28-29
Worcester North	Fitchburg	Sept. 26-27
Worcester South-east	Milford	Sept. 26-27
Worcester Horticultural	Worcester	Sept. 19-22

MICHIGAN.

Allegan Co	Allegan	Sept. — —
Bay Co	Bay City	Sept. 27-29
Branch Co	Coldwater	Oct. 4- 6
Calhoun	Marshall	Oct. 3- 8
Central	Hubbardston	Oct. 3- 5
Eaton	Charlotte	Sept. 27-29
Genesee	Flint	Oct. 3- 6
Hillsdale	Hillsdale	Oct. 3- 4
Ingham	Mason	Sept. 27-29
Ionia	Ionia	Sept. 27-29
Lenawee Co	Adrian	Sept. 27-29
Macomb Co	Romeo	Sept. 28-30
Oakland Co	Pontiac	Oct. 4- 6
Saginaw	Saginaw	Sept. 27-28
St. Joseph Co	Centerville	Sept. 27-29
Schiawassee Co	Owasso	Oct. 4- 6

MINNESOTA.

Blue Earth Co	Mankato	Sept. 13-15
Carver	Carver City	Sept. 29-30
Dacotah Co	Farmington	Sept. 19-21
Fillmore and Mower	Preston	Sept. 14-15
La Seuer	Cleveland	Oct. 3- 4
Minneapolis Co	Minneapolis	Sept. 12-17
Nicollet Co	St. Peter	Oct. 3 —
Olmstead	Rochester	Oct. 5- 7

MISSOURI.

Audrain Co	Mexico	Aug. 15-20
Bates Co	Butler	Sept. 26-30
Boone Co	Columbia	Aug. 29-Sept. 2
Boone Co	Sturgeon	Sept. 5-10
Buchanan	St. Joseph	Aug. 22
Callaway Co	Fulton	Aug. 22-27
Chariton Co	Salisbury	Sept. 26-Oct. 1
Clay Co	Liberty	Aug. 29-Sept. 2
Clinton	Plattsburg	Sept. 12
Cole Co	Jefferson City	Sept. 12-17
Cooper Co	Booneville	Sept. 4- 8
Dade Co	Greenfield	Sept. 27-29
Daviess Co	Gallatin	Sept. 26-Oct. 1
De Kalb	Cameron	Oct. 3- 8
Gentry Co	Albany	Sept. 19-22
Holt Co	Oregon	Sept. 13-15
Henry Co	Clinton	Sept. 27 —
Jackson Co	Independence	Sept. 4- 7
Jasper Co	Carthage	Oct. 10-12
Laclede Co	Lebanon	Oct. 12-13
Lafayette Co	Lexington	Oct. 10-15
La Grange	La Grange	Aug. 28-31
Lewis Co	Canton	Sept. 26-30
Linn	Brookfield	Sept. 13-17
Livingston	Chillicothe	Sept. 19
Marion	Hannibal	Sept. 25-30
Monitcau Co	California	Sept. 26-29
Monroe Co	Paris	Sept. 12-17
Montgomery Co	New Florence	Sept. 26-30
Pettis Co	Sedalia	Sept. 18-23
Phelps	St. James	Sept. 13-16
Pike Co	Louisiana	Sept. 19-24
Platte Co	Platte City	Sept. 5-10
Randolph Co	Huntsville	Aug. 29-Sept. 1
Roanoke District	Roanoke	Aug. 22-27
Saline	Miami	Sept. 12
Shelby Co	Shelbyville	Oct. 9-14
South-eastern	Cape Girardeau	Oct. 12-14
Sturgeon		Sept. 5-10
Warren Co	Warrenton	Oct. 11 —
Washington Co	Potosi	Sept. 12-16
Webster	Marshfield	Sept. 28-30

NEBRASKA.

Douglas Co	Omaha	Sept. 19-21

NEW HAMPSHIRE.

Ashuelot	Winchester	Sept. 13-14
Contoocook Valley	Hillsboro' Bridge	Sept. 19-20
Coos Co	Lancaster	Sept. 25-26
Cheshire Co	Keene	Sept. 26-28
Grafton Co	Plymouth	Oct. 3- 5
Hillsborough Co	Milford	Sept. 12-13
Mascoma Valley	Canaan	Sept. 13-15
Merrimac Co	Concord	Sept. 20-21

NEW JERSEY.

Burlington	Mt. Holly	Oct. 3- 4
Cape May Co	Seaville Station	Sept. 6- 7
Cumberland	Bridgeton	Sept. 27-28
Hunterdon Co	Flemington (?)	Sept. 26-28
Monmouth Co	Freehold	Sept. 12-14
Salem Co	Salem	Sept. 21-22
Trenton Union	Trenton	Sept. 5- 7

NEW YORK.

Allegany Co	Angelica	Sept. 20-21
Broome	Whitney's Point	Oct. 3- 7
Cayuga Co	Auburn	Sept. 12-14
Chautauqua Co	Jamestown	Sept. 25-28
Chenango Co	Bainbridge	Sept. 19-21
Chenango Co	Norwich	Sept. 19-21
Chemung Co	Elmira	Sept. 21-23
Columbia A. & H. Ass	Hudson	Sept. 26-28
Corning Ag. Soc	Corning	Sept. 13-15
Cortland	Near Cortland Village	Sept. 12-14
Delaware Co	Walton	Sept. 26-28
Erie	Hamburg Driving Park	Sept. 13-15
Franklin	Malone	Sept. 26-29
Geneva Horticultural	Geneva	Sept. 20 —
Genesee	Batavia	Sept. 13-15
Hugnenot Horticultural	Kingston	Sept. 19-21
Iroquois	Versailles	Sept. 19-22
Jefferson Co	Watertown	Sept. 19-21
Lewis Co	Lowville	Sept. 12-14
Livingston Co	Genesco	Sept. 27-28
Lenox Farm's & Mech	Oneida	Sept. 28-30
Madison Co	Hamilton	Sept. 26-28
Newburg Bay Hort	Newburg	Sept. 26-28
Niagara Co	Lockport	Sept. 14-16
Onondaga Co	Manlius and Pompey	Sept. 20-21
Oneida Co	Camden	Sept. 12-14
Oneida	Rome	Sept. 18-22
Oneida Co	Annsville	Sept. 25 —
Oneida Co	Trenton	Sept. 5- 7
Oneida Co	Waterville	Sept. 26-27
Ontario	Canandaigua	Sept. 21-22
Orleans Co	Albion	Sept. 15-16
Oswego Co	Mexico	Sept. 19-21
Oswego Town	Oswego	Sept. 5- 7
Oswego Co	Oswego Falls	Sept. 12-14
Oswego Co	Sandy Creek	Sept. 14-15
Otsego Co	Cooperstown	Sept. 12-14
Otsego Co	Schenevus	Sept. 27-29
Queens Co	Mineola	Sept. 27-29
Rensselaer Co	Troy	Sept. 4 —
St. Lawrence Co	Canton	Sept. 12-14
St. Lawrence Co	Gouverneur	Sept. 26-28
St. Lawrence Co	Hammond	Sept. 20-22
Schuyler Co	Watkins	Sept. 28-30
Steuben Co	Bath	Oct. 4- 6
St. Lawrence Co	Waddington	Sept. 5- 7
Tompkins Co	Trumansburg	Sept. 20-22
Wayne Co	Palmyra	Sept. 28-30
Warren Co	Glens Falls	Sept. 12-15
Westchester Co	White Plains	Sept. 12-16
Wyoming	Warsaw	Sept. 20-21
Washington	Salem	Sept. 27-29
Yates	Penn Yan	Oct. 10-12

NORTH CAROLINA.

Rowan Co	Salisbury	Oct. — —

OHIO.

Allen Co	Lima	Sept. 21-23
Auglaize Co	Wapakonetta	Oct. 4- 6
Ashland Co	Hayesville	Sept. 26-28
Ashta Co	Orweli	Sept. 4- 6
Belmont Co	St. Clairsville	Sept. 27-29
Brown Co	Georgetown	Sept. 5- 8
Butler Co	Hamilton	Oct. 3- 6
Carroll Co	Carrollton	Sept. 26-28
Champaign Co	Urbana	Sept. 12-15
Clark Co	Springfield	Sept. 5- 8
Clermont Co	Boston	Sept. 12-15
Clinton Co	Wilmington	Sept. 6- 8
Columbiana Co	New Lisbon	Sept. 20-22
Conneaut Co	Conneaut	Sept. 20-22
Coshocton Co	Coshocton	Sept. 13-15
Crawford Co	Bucyrus	Oct. 3- 6
Cuyahoga Co	Cleveland	Oct. 3- 6
Darke Co	Greenfield	Sept. 26-29
Defiance Co	Defiance	Oct. 3- 6
Delaware Co	Delaware	Oct. 3- 6
Erie Co	Sandusky	Oct. 3- 6
Fairfield Co	Lancaster	Oct. 11-14
Fayette Co	Washington C. H	Aug. 22-25
Franklin Co	Columbus	Sept. 5- 8
Fulton Co	Wauseon	Sept. 27-29
Geauga Co	Barton	Sept. 13-15
Greene Co	Xenia	Sept. 12-15
Guernsey Co	Cambridge	Sept. 20-21
Hamilton Co	Cincinnati	Sept. 5- 9
Hancock Co	Findlay	Oct. 5- 7
Hardin Co	Kenton	Sept. 13-15
Harrison Co	Cadiz	Oct. 4- 6
Henry Co	Napoleon	Sept. 20-21
Highland Union	Garrettsville	Sept. 27-29
Highland Co	Hillsboro	Sept. 4- 6
Hocking Co	Logan	Oct. 5- 7
Huron	Norwalk	Sept. 19-21
Jackson Co	Jackson	Sept. 27-29
Knox Co	Mt. Vernon	Sept. 26-28
Lake Co	Painesville	Sept. 27-29
Licking Co	Newark	Oct. 3- 6
Logan Co	Bellefontaine	Oct. 3- 6
Lorain Co	Wellington	Sept. 6- 8
Lorain Co	Elyria	Sept. 19-22
Lucas Co	Toledo	Sept. 19-22
Mahoning Co	Canfield	Oct. 3- 5
Marion Co	Marion	Sept. 5- 7
Medina Co	Medina	Sept. 11-13
Meigs Co	Rock Spring	Sept. 13-15
Mercer Co	Celina	Sept. 21-23
Miami Co	Troy	Oct. 4- 7
Monroe Co	Woodsfield	Sept. 22 —
Montgomery Co	Dayton	Sept. 5- 8
Morgan Co	McConnellsville	Sept. 27-29
Morrow Co	Mt. Gilead	Sept. 26-28
Muskingum	Zanesville	Oct. 11-13
Noble Co	Sarahsville	Sept. 20-22
Orwell	Orwell	Sept. 4- 6
Perry Co	New Lexington	Oct. 4- 6
Pickaway Co	Circleville	Sept. 19-22
Portage Co	Ravenna	Sept. 25-27
Preble	Eaton	Sept. 26-29
Putnam Co	Ottawa	Sept. 27-29
Richland Co	Mansfield	Sept. 19-22
Ross Co	Chillicothe	Sept. 10-13
Sandusky Co	Fremont	Oct. 4- 7
Seneca Co	Tiffin	Oct. 10-13
Shelby Co	Sidney	Sept. 19-22
Stark Co	Canton	Sept. 26-29
Summit Co	Akron	Oct. 3- 6
Summit Co	Twinsburgh	Sept. 5- 7
Trumbull Co	Warren, Oak Grove	Sept. 19-21
Tuscarawas Co	Canal Dover	Oct. 3- 6
Tuscarawas Co	Uhrichsville	Sept. 6- 8
Union Co	Marysville	Oct. 3- 6
Van Wert Co	Van Wert	Sept. 15-19
Warren Co	Lebanon	Sept. 20-22
Washington Co	Marietta	Sept. 20-22
Wayne Co	Wooster	Oct. 3- 5
Williams Co	Bryan	Sept. 19-21
Wood Co	Tontogany	Oct. 4- 6
Wyandott Co	Upper Sandusky	Oct. 11-13

PENNSYLVANIA.

Beaver Co	Beaver	Sept. 27-29
Berks Co	Reading	Sept. 12-15
Bucks Co	Newtown	Sept. 26-28
Butler	Butler	Sept. 26-28
Columbia	Bloomsburg	Oct. 11-13
Cumberland	Carlisle	Oct. 11-13
Doylestown A. M. Institute		Oct. 3- 6
East Pennsylvania Co	Norristown	Sept. 27-30
Fayette	Brownsville	Oct. 3- 6
Franklin	Chambersburg	Oct. 3- 6
Highland	Johnstown	Oct. 3- 6
Indiana Co	Indiana	Sept. 20-22
Kurtztown	Kutztown	Oct. 3- 6
Lehigh	Allentown	Sept. 26-29
Monroe	Stroudsburg	Sept. 26-29
Montgomery	Ambler's Station	Sept. 19-22
Northampton	Nazareth	Oct. 3- 6
Union	Lewisburg	Oct. 4- 6
Westmoreland	Greensburg	Sept. 26-28

TENNESSEE.

Campbell	Alexandria	Sept. 26-30
Memphis Ag. and Mech.		Oct. 16-22

TEXAS.

Grayson Co	Sherman	Oct. 10-14

VERMONT.

Caledonia Co	St. Johnsbury	Sept. 26-28
Chittenden Co	Essex Junction	Sept. 5- 8
Franklin	Sheldon	Sept. 20-22
Lamoille	Hyde Park	Sept. 26-27
Orange Co	Bradford	Sept. 26-28
Orleans Co	Barton	Sept. 6- 7
Rutland Co	Rutland	Sept. 13-14
Washington	East Montpelier	Sept. 27-28
Windham Co	Wilmington	Oct. 3 —

VIRGINIA.

Augusta	Staunton	Oct. — —
Lynchburg	Lynchburg	Oct. 24-26
Petersburg	Petersburg	Oct. 24-26
Shenandoah Valley	Winchester	Oct. 18-20
South-western	Wytheville	Oct. 11-13

WISCONSIN.

Dane Co	Madison	Sept. 19-21
Dodge	Juneau	Sept. 13-15
Fayette	Darlington	Sept. 14-16
Fond du Lac Co	Ripon	Sept. 19-21
Fond du Lac Co	Waupun	Sept. 14-16
Fond du Lac	Fond du Lac	Sept. 12-14
Green Co	Monroe	Sept. 21-23
Green Lake	Berlin	— — —
Jefferson Co	Jefferson	Sept. 19-21
Juneau	Manston	Sept. 21-23
Kenosha	Bristol	Sept. 19-21
Lafayette	Darlington	Sept. 19-21
Lake		Sept. 18-21
Lodi	Lodi	Sept. 13-15
Marquette	Oxford	Sept. 20-21
Monroe	Sparta	Sept. 14-16
Outagamie Co	Appleton	Oct. 5- 7
Portage Co	Plover	Oct. 4- 5
Racine Co	Racine	Sept. 13-15
Ripon Agr. Ass	Ripon	Sept. 19-21
Sheboygan Co	Sheboygan Falls	Sept. 13-15
Walworth Co	Elkhorn	Oct. 3- 6
Winnebago Co. & Omro Agr. & Mech. Assoc.	Omro	Sept. 13-15
Waupun	Waupun	Sept. 14-16

WASHINGTON TERRITORY.

Clarke Co. A. & M. Soc.	Vancouver	Sept. 19-21

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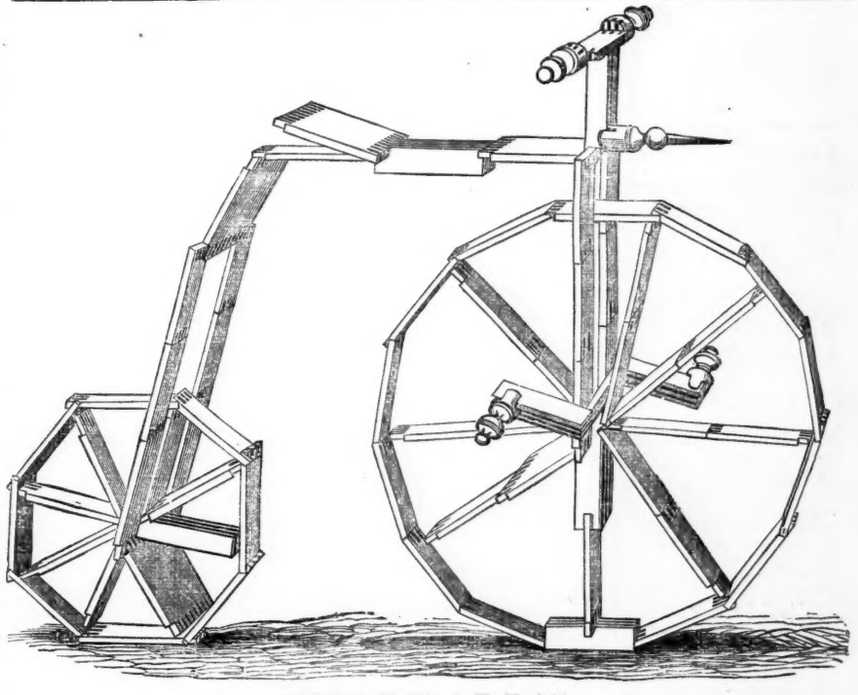

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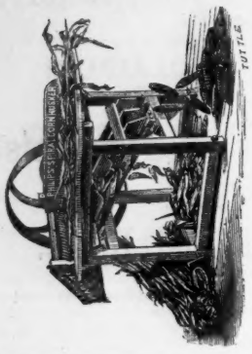

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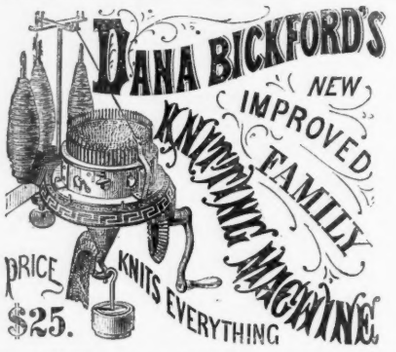

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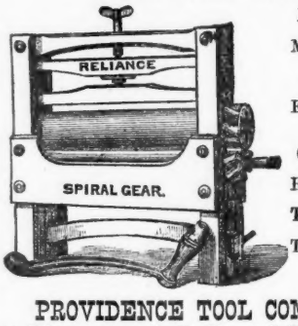

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FIRST MORTGAGE SINKING FUND

LAND GRANT BONDS

OF THE

St. Joseph and Denver City Railroad Company,

WESTERN DIVISION.

The St. Joseph and Denver City Railroad Company, having successfully built and equipped the Eastern Division of its road, extending from the City of St. Joseph, Mo., to the City of Marysville, Kansas, a distance of 112 miles, is now actively engaged in the construction of the Western Division of this line of railway, extending from Marysville, Kansas, to a junction with the Union Pacific Railroad at Fort Kearney Station, a distance, including side tracks, of 170 miles.

For the purpose of building and equipping this road, the Company have executed and delivered to the Farmers' Loan and Trust Company, *in trust*, $5,500,000 of First Mortgage Sinking Fund Land Grant Railroad Bonds, in denominations of $1,000, $500, and $100, to be countersigned and issued only in conformity with the Mortgage Deed, which is:

First—For cash.

Second—A limited amount for iron and material. The cash is placed to the credit of the Company in trust, and can be drawn out only in payment for fully completed road, in sections of ten (10) miles each, at the rate of $16,000 or $22,000 per mile, respectively, until the entire completion of the road, when the balance of the loan will be paid over to the Treasurer of the Company for equipment purposes.

The iron, the equal of gold, and materials are brought under the subjection of the mortgage, made to secure the payment of the bonds.

To secure the payment of the interest and principal of these bonds, the Company have made a first and only mortgage on their Western Division Road, completed and to be completed, from Marysville to Kearney Station, at a junction with the Union Pacific Road, a distance of 160 miles, with 10 miles side tracks, making a total distance of 170 miles, including rolling stock, motive power, depots, machine-shops, telegraphs, equipments of every description, rights of way, franchises, cash on deposit in any bank or trust company, and lands lying twenty miles on either side of the railroad, granted to the Company by the United States Government, amounting to 1,500,000 acres, and real and personal property of every description which the Company now own, or may hereafter possess, lying between Marysville and Kearney, and equipments appertaining to this Division of the Company's Road.

This entire property is mortgaged to the Farmers' Loan and Trust Company of the City of New York, as trustees. The mortgage is dated May 14, 1870, and under it, and as their security, these bonds are issued.

The bonds are now ready for sale and delivery through the undersigned. Holders and parties desiring to purchase will recognize that they can do so with perfect safety, as their value is always represented, either by lands equal in value, and a completed and equipped road—iron or cash in trust company. The mortgage expressly covers cash on deposit in bank or trust company.

The undersigned are authorized to announce the decision of the Company to sell their lands on the line of the road.

Under the mortgage deed given to secure these bonds, no land can be sold at a less price than $4 per acre.

The lands being mortgaged to secure the payment of these bonds, this lien on any portion of the land can only be removed by paying to the trustees, as mortgagees, the full amount of the purchase money of any land sales.

The fund is applied as follows:

First—To the payment of the interest on the bonds during the construction of the road, and, if necessary, the space of four (4) years

Second—To the payment of the principal of the bonds.

The payment of the principal before maturity is not compulsory to the holder of the bonds, but should holders desire to sell, the trustees are authorized to purchase, but not over a premium of fifteen per cent.

Every bond purchased under this authority is immediately canceled.

If the bonds can not be bought at one hundred and fifteen, the trustees are authorized to invest the proceeds of land sales in the bonds of the United States, States of New York, Massachusetts, and Illinois, and hold the same as a sinking fund for the redemption of these bonds at maturity.

The following banking corporations of the City of New York are designated depositaries of this loan:

Farmers' Loan and Trust Company.
United States Trust Company.
Union Trust Company.
Manhattan Company.

The bonds have thirty years to run from May 14, 1870, payable in gold, in the City of New York.

They bear interest at the rate of eight (8) per cent per annum, payable in GOLD, free of tax, semi-annually, on the 15th days of February and August, in New York, London, or Frankfort O. M., at the option of the holder, without notice, and in the currency of the country in which the coupon is presented.

The equivalent of currency is at a uniform rate of exchange, and is expressed in the coupon.

They are coupon bonds, but may be registered in the owner's name with the coupons on, or they can be converted into a registered bond by the surrender of the coupons and the interest paid to the registered owner at any of the three points where the coupons are payable.

This consolidated mortgage is at the rate of $15,000 per mile of road, and $2 per acre of land.

The bonds are offered for the present at 97½ and accrued interest, in currency, with the reserved right to advance the price without notice.

All kinds of marketable securities will be received at the current market value, without commission, in payment of this loan.

Holders of 5-20's, and especially those who do not desire to be paid off by the Treasury Department, can now exchange their Governments for these bonds at a *good and substantial profit.*

Expressage relating to the loan will be free.

Maps, pamphlets, and documents furnished on application.

It is believed no loan can be offered which rests on a more solid foundation than this loan of the St. Joseph and Denver City Railroad Company.

The most careful and critical examination of the Company's lands by experienced parties, and the estimates of prejudiced persons, have placed their value at not less than $5 per acre, while others estimate them at a higher figure. The offers which the Company have received for them fully justify the assertion that the proceeds of their sale will pay off this loan, and leave the road free of bonded debt. These bonds are receivable at par and accrued interest, in payment of any lands sold under this mortgage.

The Company, recognizing the principle that an element of strength in all loans is the provision made for their redemption, in making their mortgage a consolidated one, covering both road and lands, have wisely made provision for the payment of this loan by the sale of their landed estate, which is not needed in operating the road, but which was granted to the Company by the United States Government for the express purpose of aiding them to construct and operate this road.

The St. Joseph and Denver City Railroad connects at St. Joseph with railways running direct to St. Louis, Hannibal, and Toledo on the east, and connecting as it will with the Union Pacific Road on the west, is a very important link in the continental chain of railways. It also has through railway connection with Chicago. A very large part of the line is graded, and track-laying being now far advanced, will continue rapidly until the junction with the Union Pacific Road is made.

We have been at great expense in the examination of this property and the bonds and mortgage, and are satisfied the investments in this loan will not only be safe, but profitable. We base our calculations on the fact that the First Mortgage Bonds of this Company, on the Eastern Division, lately successfully placed by our firm at 97½, have advanced to 102 and accrued interest, making them rule at 106, or nearly ten per cent advance.

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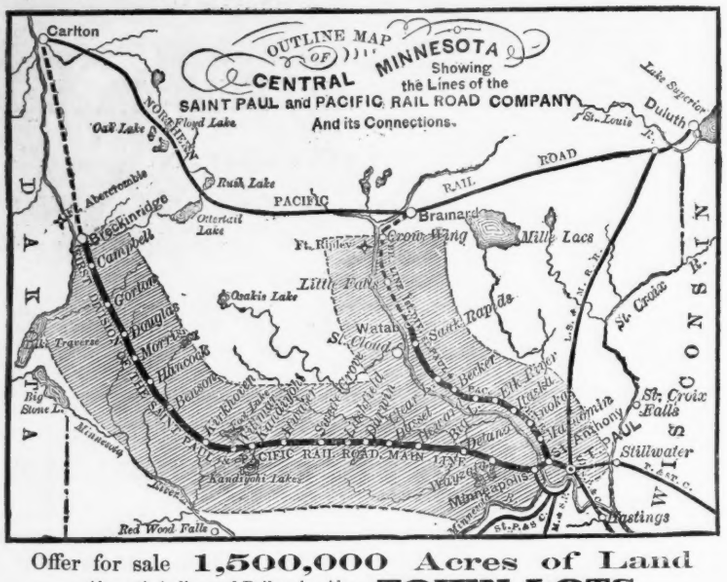

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